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Imaging and Imagining: Mapping, Repeat Photography, and Ecological Restoration in Jasper National Park.

by

Jenaya Webb

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of Master of Arts

Department of Anthropology

Edmonton, Alberta
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Faculty of Graduate Studies and Research

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled *Imaging and Imagining: Mapping, Repeat Photography, and Ecological Restoration in Jasper National Park,* submitted by Jenaya Webb in partial fulfillment of the requirements for the degree of Master of Arts.

Eric Higgs

Raymond LeBlanc

Ian MacLaren

Abstract

Park managers in Jasper National Park (JNP) are presently struggling to strike a balance between protecting ecological integrity in the park and accommodating the close to 2 million people who will visit the park in 2003. It is my contention that addressing management problems in the park must involve defining and interpreting these problems in both ecological and cultural terms. In this thesis I align theoretical approaches from environmental anthropology (specifically historical ecology) with insights from ecological restoration in order to suggest how we might begin to imagine the future for JNP. A first step is to shed light on the ways people have envisioned Jasper National Park and the human place in it. I employ discourse analysis to examine two representations of Jasper National Park. I conclude that cultural perceptions cannot be ignored in our understanding of the park or in landscape management processes.

Acknowledgements

The successful completion of this thesis owes much to the people I have worked with over the past three years.

I would first like to acknowledge the unstinting support of my supervisor, the fearless leader of the Bridgland Repeat Photography Project, Eric Higgs, who bought my attention to the amazing place that is Jasper National Park. I would also like to thank the members of my supervisory committee, Ray Le Blanc and Ian MacLaren, whose comments and insights have greatly improved this thesis.

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List of Abbreviations

ARV	Athabasca River Valley
BRPP	Bridgland Repeat Photography Project
CER	Culture, Ecology and Restoration Project
CNS	Computing and Network Services
DLS	Dominion Lands Survey
JNP	Jasper National Park
SER	Society for Ecological Restoration

Introduction

In her popular travel book *A Hiker's Guide to the Art of the Canadian Rockies*, Lisa Christensen begins with a quotation from John William Beatty: "the first and most important thing in landscape painting is to find a nice comfortable place to sit" (John William Beatty, 1927, cited in Christensen, 1999:1).

On August 9th, 2002, I found a great place to sit, an ideal viewpoint. With an elevation of some 7000 feet, the Palisade is quite a hike up an abandoned fire lookout road, but it provides a grand view of Jasper National Park's (JNP or Jasper) Upper Athabasca River Valley. In the summer of 1915, M. P. Bridgland, a surveyor for the Dominion Lands Survey of Canada, had occupied this same viewpoint. From the Palisade he took 12 photographs of the surrounding landscape. Using these photographs, along with 723 others from 91 additional peaks and prominent points in the valley, Bridgland would craft the first topographic map of Jasper Forest Park. Eighty-three and eighty-four years later, Bridgland Repeat Photography Project researchers Jeanine Rhemtulla and Eric Higgs returned to all of Bridgland's 92 survey stations and re-photographed all 735 of his views. Their purpose was to use the comparative sets of images to chart landscape change.

From this same vantage point, and armed with copies of both sets of images from the Palisade station, I gazed out over the valley asking questions: How is it that people create particular meanings for places such as Jasper? How do images such as landscape art, photographs, maps and travel guides influence the way we view the landscape? How have our perceptions of the landscape changed over time? How do our experiences with the landscape fit in? What kinds of assumptions contribute to our impulse to protect and restore Jasper?

My broader purpose in this thesis is to shed light on how people generate knowledge about the world (through language, maps, images, and experiences) and how that knowledge, in turn, shapes our understanding of the world and our place in it. It is my contention that a better understanding of this process is especially important in places such as national parks, which have, over the years, become icons of Canadian wilderness, landscapes imbued with both cultural and ecological significance.

Research Problem

> The place of humanity in nature – or more precisely, the relationship of the human species to the rest of reality – has been a central problem in all historical cultures.
> (Lease, 1995:7)

People are constantly (today perhaps more than ever) struggling to define our relationship with nature. We continue to seek it out at places as diverse as Disney's Wilderness Lodge, the family cabin, or in the backcountry of national parks and other protected areas. Of course, this struggle is not a new one. However, in recent years, perhaps largely due to the recognition of the severe environmental degradation that we have caused, there has been a resurgence of interest in the topic. After several decades of neglect, theorizing the human relationship to the natural world has reclaimed an important place in the social sciences and the humanities.

Such theorizing is becoming increasingly important in places such as JNP where park managers are beginning to recognize that long-term human occupation and management have had profound impacts on the landscape. Long before Jasper National Park was established in 1907 in the Upper Athabasca Valley, humans used the valley for a variety of purposes: as a hunting ground, a trade corridor, a place to live and farm, and a place from which to extract natural resources. Presently, JNP sees close to 2 million people pass through its gates annually. To accommodate all these visitors, the park is being commercially developed at a significant pace. Additionally, the ecological integrity of the park is being increasingly threatened from the outside: coal mining operations, and logging and timber operations are appearing nearer and nearer to park borders.

Park managers are thus struggling to create a balance between accommodating tourists and developers, on the one hand, and maintaining ecological integrity in the park, on the other. However, the tendency in management to date has been to segregate ecological and cultural processes in the park by enforcing restrictive policies and erecting both literal and symbolic barricades between people and ecosystems (Higgs, 2003). From an environmental anthropology perspective, and considering the long history of

human influence in JNP, such a dichotomous approach to management is problematic. It is my contention that addressing environmental problems in Jasper National Park must involve defining and interpreting these problems in both ecological and cultural terms.

One management approach that explicitly acknowledges both cultural and ecological processes on the landscape is ecological restoration. Ecological restoration offers several insights that can guide park managers in incorporating both ecological and cultural processes. First, restoration allows for the incorporation of the park's history, both human and ecological. Second, restorative approaches have the reflexivity to recognize the ongoing role of contemporary cultural values and social practices in shaping the landscape and in shaping management practices.

While addressing environmental problems in JNP must involve both cultural and ecological considerations, the question is how. In this thesis I align theoretical approaches from environmental anthropology and historical ecology with insights from ecological restoration in order to suggest how we might begin to imagine the future of JNP. A first step is to examine the ways we humans have envisioned Jasper National Park and our place in it.

Research Objectives and Questions

The main objectives of this thesis are two-fold. First, I examine M. P. Bridgland's 1917 map of Jasper and the Bridgland Repeat Photography Project's 1999 website, highlighting the cultural construction of images and the scientific rhetoric of photographs and maps. Second, I use the insights gained from my interpretations to draw conclusions from within the theoretical framework of historical ecology, linking back to restoration efforts in Jasper National Park.

In my interpretation of the images (chapters three and four), I address the following questions: How were these images used to construct "scientific" accounts of the park? How have images of the park (such as maps and photographs) contributed to our cultural understanding of the landscape? In my discussion in chapter five, I address the following questions: How can the examination of these two cultural accounts contribute to theory from historical

ecology and environmental anthropology? How might this type of information be used to inform environmental policy, specifically, park management in Jasper National Park?

Thesis Outline

Chapter One – Setting the Scene, begins by providing an introduction and brief background to Jasper National Park. Additionally, this chapter will set forth the theoretical approach I take to understanding the relationship between people and the landscape of Jasper National Park. I begin by summarizing the theoretical literature from ecological restoration, followed by an overview of the literature from historical ecology, a theoretical approach from anthropology that addresses the complicated relationship between people and their environments. Finally, I introduce Higgs' (2003) landscape evolution model as a link between historical ecology theory and the practical application of ecological restoration.

Chapter Two – Methods, outlines the approach I employ to interpret M. P. Bridgland's 1917 map and the BRPP website. I begin chapter two by introducing the 1917 and 1998-99 record sets and providing the reader some background information on my project. Then, I introduce discourse analysis as the method that I have drawn on for my interpretation. I also provide a detailed description of the particular questions and considerations applied to the analysis and interpretation of each of my two record sets. Finally, I introduce the ethnographic nature of my perspective on the BRPP and describe how my experience as part of the BRPP research team has greatly informed my research.

Chapters three and four comprise the main analytical portion of my thesis. In *Chapter Three – Vision of an Ordered Land(scape),* I employ discourse analysis to interpret M. P. Bridgland's 1917 map of Jasper. In particular, I seek to shed light on how the landscape of Jasper was represented as a "wilderness" by the authoritative voice of the Dominion Lands Survey of Canada. In *Chapter Four – Looking Over Bridgland's Shoulder,* I again employ discourse analysis to interpret the Bridgland Repeat Photography Project website. By examining the BRPP website, I aim to shed light on how language and images were used to construct an account of Jasper that focuses on landscape change.

In *Chapter Five – Imaging and Imagining,* I begin by reflecting on the insights gained through the analysis and interpretation of M. P. Bridgland's and the BRPP's accounts of JNP. I then discuss my results within the theoretical framework of historical ecology, focusing my discussion on how I understand the relationship between people and their environments. I then return to the landscape evolution model proposed by Higgs (2003). I argue that while this model is useful for creating the link between theoretical approaches from historical ecology and insights from ecological restoration, on a practical level, it does not capture the synergic essence of the relationship between nature and culture in creating landscapes.

Finally, in my concluding chapter, I summarize the main arguments of this thesis, speculate about the future of management in Jasper National Park, and suggest some directions for future research in this area.

Chapter One – Setting the Scene

Jasper National Park has been described by many as a "threatened landscape" (Higgs *et al.*, 1999). The park, established in 1911, is presently being developed at a very rapid pace. Within it, there is a struggle between those who would see development continue to increase, others who fight to protect the park from human degradation, and yet others who strive to balance the two. Additionally, the park is threatened from the outside as coal mining operations, logging and timber operations, and tourism inch toward the park borders. Of course, the tensions within the park are reflections of a dual mandate for Canadian parks established with the Canadian National Parks Act in 1930, which sought to leave parks unimpaired for future generations while at the same time enhancing visitor enjoyment (Canada, 1930). Even today, with the mandate shifting increasingly in favor of ecological protection (Canada, 1988, 2000) the pace of development has not slowed.

As park managers struggle to cope with rapidly increasing demands on the park, and increasingly insufficient budgets, they require sophisticated and practical management models. Recently, they have received some good news. In August of 2002, at the World Summit on Sustainable Development in Johannesburg, Prime Minister Jean Chrétien announced that the Canadian government would create ten new national parks over the next five years as well as work to restore and protect the ecological integrity of our existing national parks (Canadian Parks and Wilderness Society, 2003). This announcement was followed on March 24, 2003 with a commitment from Heritage Minister Sheila Copps of an additional $144 million dollars to be invested over the next five years to implement the Action Plan for Canada's national parks (Canadian Parks and Wilderness Society, 2003). This funding is in addition to a commitment of $74 million dollars announced in the federal budget in February of 2003 (Canadian Parks and Wilderness Society, 2003).

With this renewed support, park managers have begun to seek new and better ways to manage national parks. Ecological restoration has recently emerged as a viable management alternative for Jasper National Park. As a management model, ecological restoration provides two significant insights apart

from its ecological benefits. First, restoration allows for the incorporation of the park's history, both human and ecological. Second, restorative approaches are conducive to the reflexivity that recognizes the ongoing role of contemporary cultural values and social practices in shaping the landscape and in shaping management practices.

This chapter is intended to set forth the theoretical approach I take to understanding the relationship between people and the landscape of Jasper National Park. I begin by providing a brief introduction to the place that is Jasper. Next, I present a brief overview of the theoretical literature on ecological restoration, focusing on an expanded conception of ecological restoration in which cultural values are incorporated along with ecological values. I argue that this approach is particularly relevant in places such as Jasper National Park where human values have shaped, and continue to shape the landscape significantly. I then introduce the discipline of historical ecology, a theoretical approach from anthropology that addresses the complicated relationship between people and their environments. Examining this relationship is vital for conducting good ecological restoration. Finally, I discuss Eric Higgs' (2003) landscape evolution model as a link between historical ecology and ecological restoration.

1.1 Jasper National Park

The modern landscape of Jasper began to take form about 120 million years ago when the sediments of the west-coast continental shelf were pushed inland, breaking up flat-lying layers of marine sediments and creating upward thrusts and folds of rock (Gadd, 1986). Over time, the landscape of Jasper has also been shaped by erosion and, more recently, glaciers that carved out rugged limestone peaks and deep, wide valleys (Gadd, 1986). This mountainous landscape, in its immensity, has long aroused notions of the sublime and, as MacLaren notes, the mountains themselves, "readily inspire awe in such a way as to seem to exceed their own spatial dimensions" (MacLaren, 1999:5). Today, the awe-inspiring landscape of Jasper draws tourists from

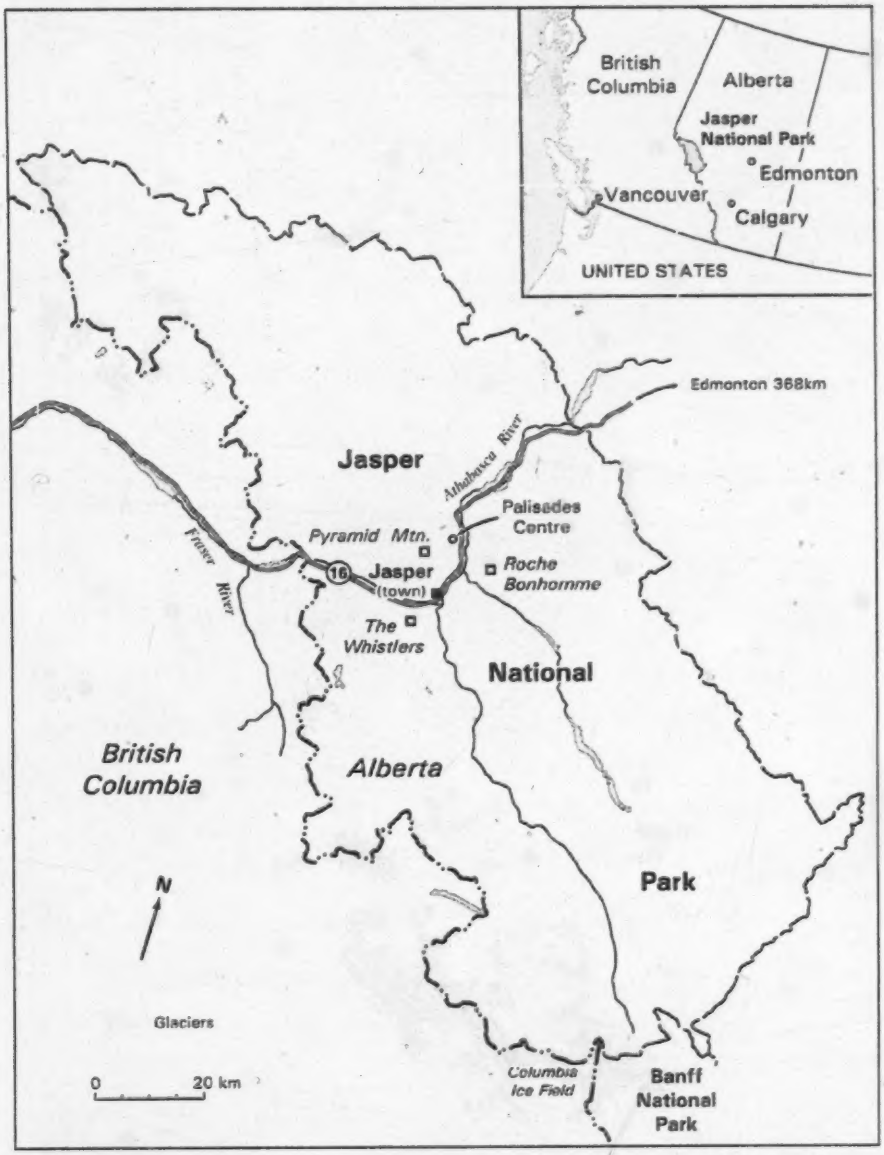

Figure 1.1
Map of Jasper National Park and main points of reference. From Higgs' 2003 *Nature by Design.*

around the world – close to 2 million people will visit Jasper National Park this year.

However, most of the first European travelers through the Athabasca River Valley did not come to recreate or enjoy the sublime beauty of their surroundings as we do today. These were the early explorers, fur traders, settlers, and prospectors whose priorities belonged to carving a civilized and economically viable living out of the raw landscape. These early travelers were followed in the 20th century by an era of expansion that would eventually bring Dominion Lands surveyors to map out the wilderness, scientists to take inventory of the natural resources, businessmen to harvest those resources, and railways to join the nation and bring people into the wilderness. Indeed, it was the planned construction of the Grand Trunk Pacific Railway through the Yellowhead pass in Jasper that would bring about the creation of Jasper Forest Reserve on September 14th, 1907 (Lothian, 1976; McNamee, 1993). Jasper is one of a cluster of national parks that was established in the Canadian Rocky Mountains in the late 19th and early 20th centuries. These parks (including Banff, Canada's first national park, established in 1885) have, over the years, become icons of Canadian wilderness both at home and internationally:

> History and geography have thus conspired powerfully; consequently, the mountain parks have transcended regional identity to become national, and, with their designation in 1984 as a World Heritage site by the United Nations Educational, Scientific and Cultural Organization (UNESCO), global. (MacLaren, 1999:5)

The legacies of First Nations peoples, early explorers, Métis settlers, park managers, and tourists in Jasper National Park have created a landscape imbued with cultural, historical, economic, scientific, and ecological significance. Moreover, the landscape of Jasper is one permeated with cultural meaning. Today, Jasper represents many things to many people. For those of us who live nearby, Jasper is a weekend get-a-way; for others it is a wilderness preserve, a mountain paradise, or even a golfing destination (the Jasper Park Lodge is home to an 18-hole golf course, complete with elk). Understanding how these

meanings are created for Jasper is a vital part of creating long-term restoration goals for the park (Higgs, 2003).

1.2 Theoretical Approaches to Ecological Restoration

Managing Jasper National Park, where the landscape means so many things to so many people, is complicated. The very idea of managing a national park raises a series of complicated and difficult questions. Why should there be so-called natural ecosystems management? Whose idea of nature is being represented? Is human interaction with the landscape an acceptable part of the system? Should management decisions be historically based? How should cultural practices and values be factored into the decision-making process? In tackling such questions, what is becoming apparent is that park managers can no longer discount the historical role that people have played in shaping the landscape; nor can they ignore the continuing influence of people as they plan the future of the park.

A management approach that is gaining support in Jasper, in other Canadian national parks, and in a wide variety of settings internationally is ecological restoration. The Society for Ecological Restoration International (SER), the lead international organization promoting ecological restoration, defines *ecological restoration* as "the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed" (SER, 2002).

While the SER definition is accommodating and broad in scope, it is by no means the only answer to the question: What is ecological restoration? Defining *ecological restoration* is highly contested by restoration practitioners and theorists. As Jackson *et al.* note,

> Since the founding of the Society for Ecological Restoration, its members and leaders have discussed what ecological restoration is and isn't, what it should and should not include, and how we can make such determinations when each restoration has a different place, context and outcome. (Jackson et al, 1995:71)

Even the word "restoration" is problematic for many. William Jordan devotes an editorial in *Restoration and Management Notes* to the topic:

> Restoration is only one of a family of words used to refer to – what can we call it? – curatorial land management. Others include a cluster of words beginning with "re-" terms like rehabilitation, reclamation, re-vegetation, re-creation, and so forth, all of which convey some aspect of the basic idea of getting back to something that we find in the word restoration itself. (Jordan, 1995:151)

Higgs (2003) devotes an entire chapter of *Nature by Design: People, Natural Process, and Ecological Restoration* to this terminological dilemma. In an attempt to unravel some of the confusion and shed light on the question, Higgs considers variant meanings for restoration with the aim of identifying central concepts. What emerge are two core attributes of ecological restoration: ecological integrity, "the concern for the quality of the ecosystems resulting from restoration"; and historical fidelity, "the extent to which the restoration reflects the history of the place" (Higgs, 2003:95). Higgs adds to these core concepts and suggests that the conduct of good ecological restoration must involve a context much larger than the technical or scientific competence required to return ecosystems to a particular state (Higgs, 2003). He argues that we must measure the value of ecological restoration based not only on scientific notions of whether it was effective, but also economic efficiency and importantly, by whether or not it encompasses social, cultural, political, aesthetic, and historical factors (see figure 1.2). While Higgs recognizes there are flaws in his position, he argues that the incorporation of additional kinds of practice and knowledge are vital if restoration is to be successful in the long term (Higgs, 2003). While there is a large body of literature on the technical and scientific aspects of ecological restoration, my central interest is restoration in this broader, expanded context.[1]

Social, cultural, political, and economic factors are commonly incorporated into restoration projects as part of the environmental history of the particular place being restored. In her article "Applying Environmental History to Ecological Restoration", Michelle Steen-Adams examines the history of human

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[1] *Restoration Ecology*, published quarterly by the Society for Ecological Restoration, is the Society's scientific and technical journal and would serve as an excellent starting point for anyone interested in the technical and scientific aspects of ecological restoration.

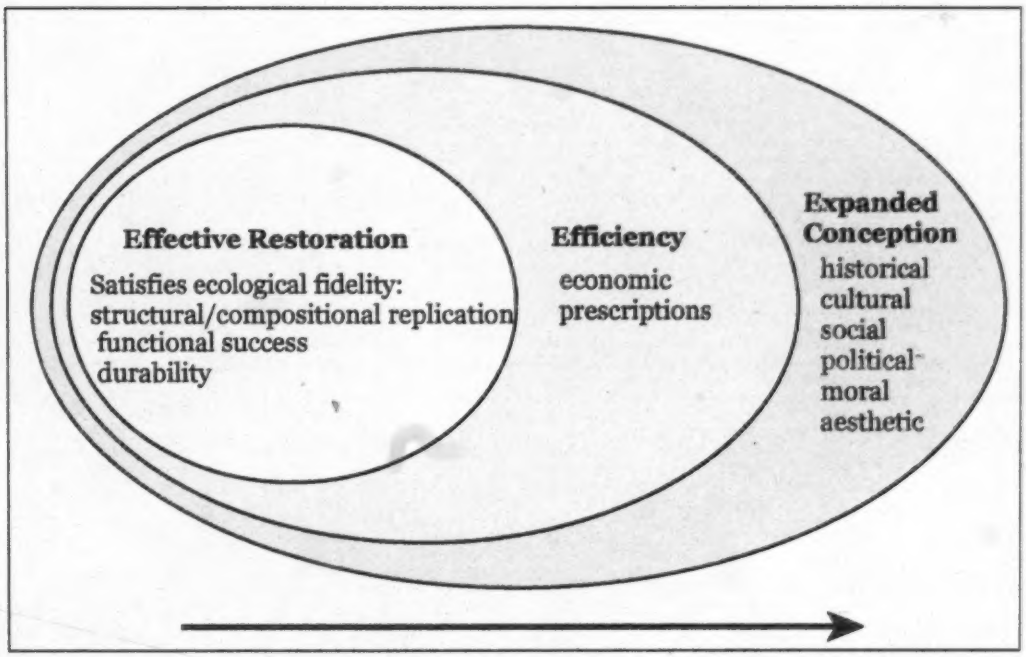

Figure 1.2
Higgs' expanded conception of ecological restoration. From Higgs, 2003, *Nature by Design.*

land-use practices in Zion National Park, Utah, in order to explain current ecological characteristics of the park, and to help understand the way ecological processes in the park have fluctuated through time (Steen-Adams, 2002). She describes how the legacies of the late 19th century pioneer settlers (farmers who, over the course of 50 years, transformed the desert landscape's shifting alluvial soils into productive farmlands) and early 20th century national park managers (who, driven by cultural ideas about sublime wildernesses, rebuilt the North Fork of the Virgin River to suit their ideals) have shaped the landscape of the park. In addition to shedding light on how the current landscape of Zion National Park has taken its shape, Steen-Adams suggests that this work also gives current park managers "an awareness that their own decisions also play a role in the larger continuum of interactions between people and the environment" (Steen-Adams, 2002:259).

Social, cultural, political, and economic factors often play a direct role in the success or failure of restoration projects. In his 1997 article "Restoration Where People Matter: Reversing Forest Degradation in Michoacán, Mexico", Daniel Jaffee argues that the goals and strategies of restoration must be re-evaluated if restoration is to have any long-term benefit in areas where people live (Jaffee, 1997). His case study in southwestern Mexico suggests that the conjuncture of social, cultural, political, and economic factors (including traditional land management practices, government ownership and control of the forests, and the growing forest industry in Mexico) are some of the roots causes of forest degradation in Michoacán and as such, they must also be addressed if a successful restoration solution is to be found. Jaffee goes on to argue that restorationists must work collaboratively with the people who have owned, managed, and lived on the land if restoration is to be successful. Both Steen-Adams' and Jaffee's case studies hold important lessons for restorationists in places such as Jasper National Park. They suggest that understanding landscape change and the causes of environmental degradation is largely contingent upon understanding the details of the human history, cultural values, political and economic systems, and social practices that have shaped the landscape of the place. Additionally, these case studies point to the importance of integrating

existing land use practices (stemming from the values, beliefs and assumptions of local people, land owners or park managers) into any restoration plan. Be it park management and tourism in a national park, or traditional farming and industrial logging in a government-owned forest, people have a continuing impact on the land, and this impact needs to be considered.

Eric Katz, an environmental philosopher, is among the critics of ecological restoration who suggest that integrating cultural and ecological processes is not a desirable or ethical goal for environmental protection policy. Katz contends that ecological restoration amounts to the creation of an artificial and completely unnatural world (Katz, 2000). Katz brings together some of the main critiques of ecological restoration. First, while he claims he does not subscribe to the nature/culture dichotomy, Katz argues that we must make clear distinctions between what is natural and what is artificial (created by humans). Based on these distinctions, he claims that ecological restorations are artificial, even fakes or forgeries of nature. Second, Katz argues that ecological restoration as environmental policy could be used to justify further development and degradation of natural areas: "the developer can always claim that after the initial destruction of the natural area, it can be restored to a state that is as good as the original" (Katz, 2000:43). His chief ethical point is that if we accept restoration as an acceptable goal for environmental policy, then we will also (falsely, he asserts) accept that there are no limits to our abilities to degrade, develop, and then restore the natural world.

Andrew Light, an environmental philosopher, counters Katz's claims by arguing that ecological restoration is not only about restoring nature itself, but also about restoring an important part of the human relationship with nature. He adds that Katz's views are not sufficiently sensitive to the values at work in restoration projects and essentially dismisses Katz's claims on this basis. Light suggests that what is needed is a more practical contribution from environmental philosophy, a contribution that is "directed at a larger audience, beyond the professional philosophy community, and aimed toward the practical end of helping to resolve environmental problems" (Light, 2000:67).

Though creating a single definition for ecological restoration may prove a difficult task, practitioners and theorists nonetheless have a very clear sense of what ecological restoration is:

> Ecological restoration is about making damaged ecosystems whole again by arresting invasive and weedy species, reintroducing missing plants and animals to create an intact web of life, understanding the changing historical conditions that led to present conditions, creating or rebuilding soils, eliminating hazardous substances, ripping up roads, and returning natural processes such as fire and flooding to places that thrive on these regular pulses. (Higgs, 2003:1)

1.3 Theoretical Approaches to People and Landscapes

As the above discussion suggests, practicing good ecological restoration entails having a strong knowledge of how cultural and natural processes have worked together to create the landscape in question. Of course, unraveling the complicated human relationship to the natural world is not a new problem. From early on, human relationships with our natural environments have been a central concern for anthropologists, whether in the fields of archaeology, cultural ecology, ethnobotany, traditional ecological knowledge and folk taxonomies, or in the study of myths, rituals and subsistence techniques linked to the environment. In recent years, anthropologists have also begun to address environmental issues in an applied manner by "blending theory and analysis with political awareness and policy concerns" (Kottak, 1999: 25).

The human-environment relationship has traditionally been the specific focus of what is termed ecological and, more recently, environmental anthropology. An assumption fundamental to the discipline is that human-environment relations are mediated by culture: it is the nature of these relations that has been the principal area of debate. Kay Milton notes that anthropologists have conceptualized the relationship between human beings and their environments in three broad ways:

> First, human beings adapt to and are therefore shaped by their environments; second, human beings adapt their environments to suit their own needs, and therefore determine or shape those environments; third, human beings interact with their environments in such a way that they shape each other. (Milton, 1996:40)

Current practices in environmental anthropology focus on the third, emphasizing the importance of defining the relationship as a constant and ongoing dialogue between people and their environments. Biersack notes that "today's ecologies – symbolic, historical, political – radically depart from the reductions and elisions of the ecological anthropology of the past" (Biersack, 1999: 5). Indeed, "probably no anthropologist writing today would describe the relationship between human beings and their environments as deterministic in either direction" (Milton, 1996:55). In the 1950s and 60s, a wide range of anthropological theory was based on an *opposition* between culture and nature (Biersack, 1999). The very language of this anthropology premised the dichotomy. For instance, as Biersack notes, the concept of *adaptation* signified "cultural accommodations to an extracultural, a priori environment" (Biersack, 1999:8). What such a dichotomous paradigm does not recognize, however, is that the environment is "historically and culturally produced through human-nature interactions" (Biersack, 1999:10).

1.3.1 Historical Ecology

One group of anthropologists that has successfully addressed this issue (both theoretically and methodologically) is historical ecologists. This discipline, or rather *inter*discipline, weaves together an historical understanding of both cultural and ecological processes in a landscape. According to William Balée, "historical ecology focuses on the interpenetration of culture and the environment, rather than on the adaptation of human beings to the environment" (Balée, 1998:3). He echoes Ingerson in stating that the relationship between nature and humans is a *dialogue* and not a dichotomy (Ingerson, 1994). The emphasis of the dialectical relationship between humans and their environments has lead historical ecologists to draw out the *complexities* of this relationship

rather than reducing the relationship to one of a deterministic nature. The contributors to this field are not only anthropologists; they range from research ecologists to library directors to landscape architects. This range of researchers speaks strongly to the interdisciplinary interest and expertise in the practice of historical ecology and contributes to bridging academic divisions across the natural and social sciences and the humanities. (Crumley, 1994). By incorporating interdiciplinarity, spatiality, and temporality, historical ecology represents a new, powerful, and holistic framework for research and debate on one of the most fundamental problems of our time: comprehending the diverse and complex relationships between humans and their environments.

As the name suggests, a fundamental characteristic of historical ecology is the incorporation of history as an important component in the study of human-environment relations. Essentially, historical ecology aims to deepen our understanding of how humans have been affected by their environments through time and how they in turn have affected those environments. The idea of long-term examinations of particular landscapes appeals to me in the sense that it allows for examination of both the changing cultural attitudes towards the environment as well as physical changes on the landscape itself. By carefully untangling the changing natural and cultural forces over time (landscape change), we can begin to shed light on how this complicated relationship works. Such an approach is ultimately place-based. Indeed, landscape, defined by Carole Crumley as "the material manifestation of the relation between humans and the environment" (Crumley, 1994: 6), represents an important means of focusing on particular geographic locations in historical ecological analysis.

In the conclusion of *Advances in Historical Ecology*, Tristram Kidder and William Balée contemplate the role of historical ecology in the context of the global environmental degradation. They ask whether it should be placed as "a new field, a new paradigm, or simply a reconstitution of an extant scholarly direction" (Kidder and Balée, 1998: 405). Although the answers to these questions remain elusive, the authors do see historical ecology as an important part of a broader more significant transformation in the sciences and social sciences as a whole: "As the world continues to shrink, science must turn from its

specialization and introspection to producing a commodity that transcends disciplinary boundaries and that seeks to reintegrate humans into nature" (Kidder and Balée, 1998:409). Perhaps this is one of the most important goals of historical ecology. This type of collaborative and forward-looking research is where we should aim not only in scholarly pursuits but also in practices such as preserving local wildlands and restoring our national parks.

1.3.2 Linking Historical Ecology to Restoration: The Landscape Evolution Model

An approach to understanding the relationship between nature and culture that is specifically situated within the context of ecological restoration is Eric Higgs' model of landscape evolution (see figure 1.3). In his book, *Nature by Design*, Higgs (2003) proposes a model for landscape evolution that parallels the theoretical approach of historical ecology in that ecology and culture are woven together through time to create a landscape and that any give place changes over time as a "combined function of cultural and ecological processes" (Higgs, 2003:260). Additionally, the landscape evolution model takes historical knowledge (both cultural and ecological) and goes a step further, projecting into the future and asking what the landscape *can* be like (Higgs, 2003).

Higgs' landscape evolution model is place-based and consists of two strands, one that represents the local ecological processes (ecology) and the other that represents cultural processes (culture). The cultural strand moves from cultural memory, or knowledge of the past, to cultural reflection, the process of examining current cultural practices, and then on to cultural imagination, the possibilities for what the landscape could be like if people work with ecological processes to restore and protect it. The ecological strand begins with ecological history, or the chronicle of past ecosystems, followed by reference conditions, knowledge of the past employed as a reference in the present, and finally ecological future, the possibility of future landscapes tempered by knowledge about the range of variability of ecosystems in that particular place.

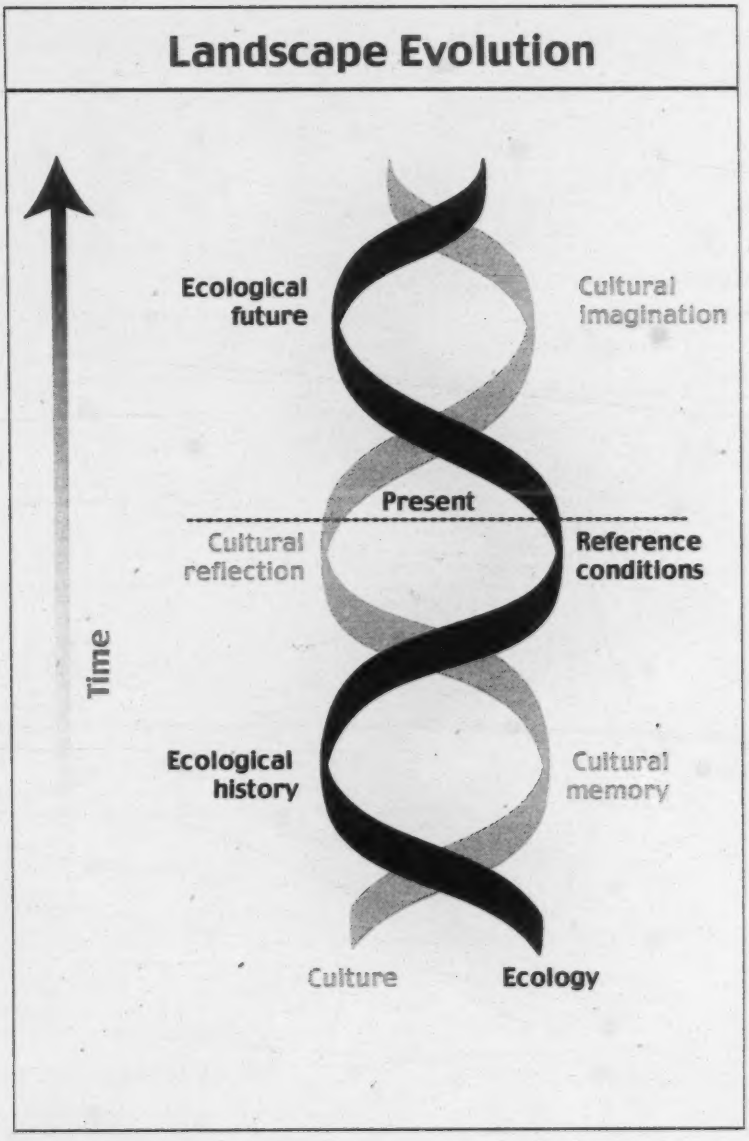

Figure 1.3
Landscape evolution model from Higgs' 2003 *Nature by Design.*

The two accounts I examine in this thesis (M. P. Bridgland's 1917 map of Jasper and the 1998-99 Bridgland Repeat Photography Project) will contribute to a clearer understanding of what Higgs has called *cultural reflection* for Jasper National Park. Higgs describes cultural reflection as the process of examining changing cultural practices: "how they have changed, how they *need* to change" (Higgs, 2003:262). However, it is my contention that any examination of cultural practices must also seek to draw out the underlying values and discourses that surround cultural practice. In other words, how is it that we decide what is acceptable practice in a given landscape? How do we decide that logging is an acceptable practice in some landscapes but not others? These sorts of decisions are based on underlying cultural values and judgments. In this thesis, I ask how culturally constructed images such as maps, photographs, and websites (as part of a broader cultural discourse) shape the way we view, understand, and interact with Jasper. Ultimately, the way we use, protect, and manage places like Jasper is contingent partially upon cultural notions of what the park represents and what is considered acceptable practice in Jasper National Park.

1.4 Summary

Practicing good ecological restoration entails having a strong knowledge of how culture and nature have worked together to create the landscape in question. Additionally, it is important to be able to take that knowledge and project it into the future. It is clear that culture and nature have worked together over the centuries in a complicated dialectic constructing and re-constructing Jasper National Park. While key pieces of the puzzle have been examined (see Higgs *et al*, 1999; Higgs, 2003; MacLaren, 1999; and Rhemtulla *et al*, 2002) much remains to be done, especially with respect to understanding the creation of cultural meanings associated with this place.

The challenge for this project is therefore to strike a better balance between human and natural agency, between the material and the ideal, between culture and ecology. Accordingly, my interpretation of JNP will operate as a conversation between cultural constructions and physical landscapes; it will

examine the landscape of Jasper as a locale of encounter and interaction.

I will re-visit the landscape evolution model in my discussion. The model, in that it links historical ecological theory with the practice of ecological restoration, will serve as a catalyst for questions about how images (as part of a broader social and cultural discourse) shape the way we view and interact with nature. Additionally, it provides a means for starting to think about integrating the insights gained from my analysis into a restorative model for Jasper National Park.

Chapter Two – Methods

> Qualitative research is interested in meaning - how people make sense of their lives, experiences, and their structures of the world . . . Qualitative research is descriptive in that the researcher is interested in process, meaning, and understanding gained through words or pictures. (Creswell, 1994:145)

In this thesis I am very much interested in how people generate knowledge about the world (through language, maps, images, and experiences) and how that knowledge, in turn, shapes our understanding of the world and our place in it. Specifically, I am interested in how Dominion Lands Surveyor M. P. Bridgland and Bridgland Repeat Photography Project (BRPP) researchers, Eric Higgs and Jeanine Rhemtulla, have created authoritative accounts of their experiences in Jasper.

Conventional cultural anthropological approaches to such questions rely on techniques such as participant observation and interviews to shed light on cultural perceptions of the environment. The broad, holistic approach of anthropology and historical ecology in particular, is nonetheless well positioned to address problems that involve both cultural and ecological issues. Indeed, as Carole Crumley notes, "only a handful of disciplines bridge the natural and social sciences, the humanities, and the professions; among the most comprehensive and theoretically sophisticated is anthropology" (Crumley, 1994:2).

To examine human-environment relationship, my thesis brings together theory and methods from anthropology, historical ecology, cultural studies, and human geography, as well as insights from disciplines such as history and resource management. Within this broad context I employ discourse analysis, a method commonly used in socio-cultural and linguistic anthropology as well as human geography and cultural studies to examine cultural documents. As a method that examines how people use language and images to construct accounts of the world, discourse analysis is well suited to my research interests.

In keeping with more traditional anthropological methods, my thesis also reflects on my own involvement as a researcher with the BRPP. My role as a

research assistant on the BRPP research team over the past three years has added an emic perspective to my research.

I begin this chapter by introducing the two record sets I employ for interpretation and giving the reader some background on the inception of this project. Then, I introduce discourse analysis as the method on which I have drawn for interpreting written and visual materials. Following this brief introduction to the method of discourse analysis, I give a more detailed description of the specific questions and considerations applied to the analysis of each of my two record sets. Finally, I introduce the ethnographic nature of my perspective on the BRPP and describe how my own experience as part of the BRPP research team has greatly informed my research.

2.1 Project Background

I am fortunate to have access to two record sets that have not been previously interpreted using discourse analysis. The first is the set of records associated with M. P. Bridgland's 1915 photo-topographic survey of Jasper Forest Park. These data include Bridgland's 1915 transit notes and survey photographs, his 1917 map of Jasper, his 1917 book *Description of & Guide to Jasper Park*, his 1924 publication *Photographic Surveying*, and a 1923 Department of the Interior reprint of his map entitled *Map of the Central Part of Jasper Park*, which included a travel pouch/brochure.

The second set of records consists of those associated with Eric Higgs and Jeanine Rhemtulla's 1998-99 repeat of Bridgland's 1915 photographic survey, (most of which is available on the Bridgland Repeat Photography website at http://bridgland.sunsite.ualberta.ca).[1] These materials include the repeat photographs, station location photographs, field notes, website text, links, as well as the design of the website itself. Of course, Bridgland's 1915 photographs (as

[1] It is also important to acknowledge the team of people involved with the project that I refer to as the BRPP team. The team consists of a group of core researchers including Eric Higgs (principal investigator), Sandy Campbell, David Cruden, Ian MacLaren, and Jeanine Rhemtulla. Additionally, student researchers include Trish Bailey, Trudi Smith, Gaby Zezulka-Mailloux, and myself. There are also a number of affiliated researchers (too many to list here) among which are the Computing and Network Service researchers, Larry McCann, Bess Sadler, and Omar Yaqub.

re-negotiated by the BRPP) are also part of the repeat survey records. Additionally, other materials associated with the BRPP such as the 1999 report produced by the Culture Ecology and Restoration project, Rhemtulla's 1999 M.Sc. thesis, and Higgs' 2003 book *Nature by Design*, have provided important background information for my analysis.

It was a long and serpentine train of events that led me to take up the BRPP data as material for interpretation. When I began my program in the fall of 2000, it was with the intention of completing spatial analytic work on human activity sites in Jasper National Park. This analysis was to be based on data that had been collected by University of Alberta researchers in the summers of 1996-97. It was only in September 2002, after having spent a year doing coursework, and another doing background work and learning Geographic Information Systems software, that I recognized the project was unfeasible. First, I discovered that the spatial data had been collected and digitized by several different researchers (using different methods) thus resulting in an inconsistent and unreliable dataset. Furthermore, the links created to connect the digital shape files[2] to their associated records in the database were created, edited, deleted, and re-created by several additional researchers. These links, vital components of a spatial database, no longer functioned properly, rendering spatial analysis nearly impossible. Additionally, metadata were insufficient, making the reconstruction of a functional dataset impracticable. Unfortunately, starting from scratch (re-collecting, re-digitizing, and re-entering all the original data) extended beyond the temporal scope of my Master's program. However, the experience and knowledge gained by working on the human activity project has given me a strong sense of the history and scope of human activities in Jasper and continues to inform my research by adding another dimension to my understanding of cultural interactions with the landscape in JNP. Despite the confluence of circumstances that made this analysis impractical for me, the project remains an

[2] Shape files are Arc View GIS's file format for representing geographic features on a digital map. Geographic features (digitized and saved as shape files) can be represented as points, lines, or polygons. For a complete discussion of GIS concepts and methods see Theobald, 2001.

exciting opportunity for research into human activity and land use in Jasper National Park, and one that I may engage in subsequent studies.

In the fall of 2002, faced with the prospect of formulating a new thesis project, I turned to the wealth of material associated with the BRPP research. Having been involved with the project from early on in my program, I knew the material well and felt that it could shed light on some of the same issues I had sought to address with my previous research. Instead of examining people's relationships with JNP through the quantitative analysis of human activity sites in the park, I now examine this relationship by trying to understand how people have represented places such as Jasper National Park. The 1915 and 1998-99 record sets provide two related accounts of Jasper at different points in history. This diachronic condition is key to this examination.

2.2 A Brief Introduction to Discourse Analysis

Fran Tonkiss maintains that while there are no strict rules for doing discourse analysis, it is possible to identify certain techniques and considerations that can be adapted to different research situations (Tonkiss, 1998). The interpretive methods I use in this thesis draw heavily on the techniques outlined in Tonkiss (1998) and Rose (2001).

Gillian Rose broadly defines discourse as "a particular knowledge about the world which shapes how the world is understood and how things are done in it" (Rose, 2001:137). According to Rose and Tonkiss, such discourses are articulated through visual, verbal, and written documents such as legal statutes, speeches, official documents, media reports, historical documents, oral histories, maps etc. (Rose, 2001; Tonkiss, 1998). The method of discourse analysis explores how these types of documents play a role in constructing and reflecting particular views of the world. As Tonkiss notes, "the discourse analyst is interested in how people use language to construct their accounts of the social world" (Tonkiss, 1998:247-48). For my analysis, this entails taking up a critical and interpretive attitude towards the 1915 and 1998-99 record sets and asking: What work do they do?

One question that is especially important in my research concerns how different accounts of the world are constructed in such a way that they become authoritative, convincing accounts. Discourse analysis addresses this question by examining the ways in which accounts of the world are constructed and presented. As Rose notes, discourse analysis examines how different accounts or views of reality are constructed as "real", "truthful", or "natural" through different truth-making devices (Rose, 2001). Drawing out these details can help reveal the cultural character of scientific accounts and serve to move into the foreground the cultural in our attempts to understand "nature".

Another feature of discourse analysis that informs this thesis is the understanding that discourses are socially, not individually, produced – in other words, they emerge within particular social, historical, cultural circumstances (Rose, 2001; Tonkiss, 1998). To deconstruct authoritative or "expert" languages, it is important to understand the broader social contexts in which these particular discourses are set (Rose, 2001; Tonkiss, 1998). In this sense, discourse analysis also aims to understand the use of discourses in their larger social context, an aim that is important in my discussion of the implications of the 1915 and 1998-99 accounts, and their role in shaping places like JNP.

Specific methods for doing discourse analysis are largely data driven and as such, doing discourse analysis has "much to do with getting a real feel for one's data," and examining themes that emerge from them (Tonkiss, 1998:254). The following sections outline the specific questions and considerations that informed my examination of each record set.

2.3 Analyzing M. P. Bridgland's Map

The set of records associated with M. P. Bridgland's 1915 survey comprises both written and visual documents. In *Chapter Three – Vision of an Ordered Land(scape)*, I focus my attention on the main product of Bridgland's 1915 survey, his 1917 topographic map entitled: *Map of the Central Part of Jasper*

Park, Alberta.[3] In the introduction to David Buisseret's edited volume *From Sea Charts to Satellite Images: Interpreting North American History Through Maps*, J. B. Harley observes that most often in historical research, maps are seen as useful for a narrow range of research questions including limited questions about locations or topography (Harley, 1990). This approach stems from our perception about what maps are. We assume that maps are accurate representations of the world and as such, we look only to the "factual or literal statements that maps make" about the world (Harley, 1990:4). Less often, Harley claims, are maps used to "illuminate cultural history or the social values of a particular period or place" (Harley, 1990:3). He suggests that there is an alternate answer to the question "what is a map"? He goes on to argue that maps must be read as cultural texts rather than simply as "mirror[s] of nature" (Harley, 1990:4). To read a map as a cultural text is to understand it not only as a product of objective science, but also, and perhaps more importantly, as a product of its own social and cultural circumstances. As such, my task is to search for the social norms and traditions that helped shape the production of Bridgland's 1917 map of Jasper.

To begin to understand Bridgland's map as a text, I needed to establish some historical context for it and get a sense of how and why it was made. The following questions, provided by Barber and Berdan (1998:242), served as a starting point for my interpretation of the map: For what purpose was the map made? What were the preconceptions of the mapmaker? What kinds of information and technology were used in creating the map? What were the kinds of conventions employed on the map (orientation, scale, relative importance of features)?

After having spent several weeks researching these questions on a broad level, I felt ready to dive into the details. A. G. Hodgkiss' chapters *The*

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[3] Bridgland's 1917 map was published as a set of six sheets that were sold to the public for 15¢ each. These sheets were popular and in 1923 the Department of the Interior re-issued Bridgland's map in a small, convenient travel pouch for tourists. Notable additions to the re-issue were the Jasper post office and telegraph station. I provide a detailed description of the map with my analysis in Chapter Three. The Bridgland Repeat Photography project owns prints of the six 1917 sheets. Additionally, copies are housed in Alberta at the Whyte Museum and Archives in Banff National Park as well as at the William C. Wonders Map Collection at the University of Alberta.

Development of a Cartographic Language and *The Development of a Cartographic Vocabulary* (1981), as well as Alan MacEachren's *How Maps Work* (1995), and Mark Monmonier's *How to Lie with Maps* (1991), all served as references for the cartographic text I was reading. As Harley notes, such works are vital as they can provide "a grammar, or dictionary in learning to read and translate the map text" (Harley, 1990:5). These reference tools in hand, I began a detailed study of Bridgland's map. Considering specific features (such as railway stations), I noted colors, frequencies, names, fonts, relative sizes and positions all in relation to other features on the map. I also examined features such as the title and the legend (termed references on Bridgland's maps). In addition to looking at what was on the map, I considered what features (such as Aboriginal homesteads) might also be missing.

Examining the details of Bridgland's map allowed me to read the map as a cultural text that both reflected and perpetuated ideas about wilderness and the human place in Jasper Forest Park.

2.4 Analyzing the Bridgland Repeat Photography Project Website

As with the 1915 record set, the set of records associated with the Bridgland Repeat Photography Project comprises both written documents and visual images, and is the focus of *Chapter 4 – Looking Over Bridgland's Shoulder*. The BRPP website, itself a culturally produced text, presents a particular type of knowledge about the landscape of Jasper.[4] Examining the choices made by researchers about the content and organization of this website can shed light on how the BRPP created an authoritative account of the landscape of Jasper National Park.

According to Rose, the first step in the interpretive process is for the researcher to try to forget all preconceptions he or she might have about the material they are working with (Rose, 2001). As I have been a member of the

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[4] Internet sites are constantly being changed and re-invented. My analysis of the site took place over the course of March and April 2003. With the expansion of the research project, the site will likely be re-named the Rocky Mountains Repeat Photography Project in the summer of 2003. The Bridgland repeat photography website is presently located at http://bridgland.sunsite.ualberta.ca/

BRPP research team since 2000, taking a step back and looking at the records with from a different perspective was a difficult task. However, having a strong interpretive framework was very helpful for the initial structuring of my examination. Some strategies for interpretation suggested by Rose (2001:158) include the following: looking at the sources with fresh eyes; immersing oneself in the texts; identifying key themes in the sources; examining their effects of truth; paying attention to their complexity and contradictions; looking for the invisible as well as the visible; and paying attention to details.

The website, set up to highlight the images, relies heavily on the photographs to tell the story. When studying visual material, Barber and Berdan note that "it is important to scrutinize not only the main subject of the images, but also all other elements (Barber and Berdan, 1998:221). They provide additional questions to consider when examining images in particular. These include: Why was the image produced? What function(s) did the imagery intend to serve? What is known about the general artistic or photographic conventions as they pertain to a particular image? What were the technical constraints in producing the image? What knowledge and preconceptions might have affected the image? Do factors such as selection, emphasis, or fabrication help shape the content of the image?

With these strategies and considerations in mind, I began my analysis by first looking at the written text on the website and making notes of the major, organizing ideas that emerged. In subsequent readings I paid particular attention to the details and intricacies of the texts. These details often pointed to complexities and contradictions such as contradictory statements within the text, or ideas that were present in the written text but were not reflected in the images. My observations completed, I looked for links between the major themes and sought to understand what work was being done to create evidence of truth. In other words I wanted to know: What is the story being told? How is that story being told? And what serves to make it true?

The method of discourse analysis is particularly well suited to the record sets described above. Additionally, this method is well positioned to produce new insights into how people (Dominion Lands Surveyor M. P. Bridgland and

researchers Eric Higgs and Jeanine Rhemtulla in particular) have generated knowledge about Jasper. Understanding the construction of their accounts may, in turn, help shed light on how they and their contemporaries viewed the park, thus contributing to *cultural reflection*.

2.5 Participating in the Bridgland Repeat Photography Project

While discourse analysis of the BRPP website is an ideal method for producing new insights into the ways Eric Higgs and Jeanine Rhemtulla constructed a story about Jasper, my discussion of their story would not be complete without also considering my own experiences working on the BRPP. My own participation in the project is also an important aspect of my interpretation as my experiences have shaped the way I understand the BRPP's story and the way I take up the website and the images in this thesis.

I joined the Bridgland Repeat Photography Project in the summer of 2000 as a research assistant with the job of scanning, processing, and archiving the 1915 and repeat collections of photographs. Over the course of the next two years, in my capacity as a graduate student, I also participated in website and database design meetings, entered the contents of the BRPP field journals into the database, scanned all the survey location photographs, and organized and spoke at the Bridgland Repeat Photography Project website public launch. Additionally, I traveled to Jasper with Eric Higgs and Trudi Smith (a fellow graduate student and BRPP researcher) in July of 2001, and again with Jeanine Rhemtulla, Ian MacLaren (professor of History and English, and BRPP co-researcher) and Bob Hallam (a local Jasper historian) in May of 2002. I made additional trips to Jasper in the summer of 2002 to check the spatial data that was to be the core of my original spatial analysis work. At this time I also visited four of the photographic stations occupied by Bridgland in 1915 and Higgs and Rhemtulla in 1998-99. Combined, these experiences allowed me to gain a strong familiarity with the data, the researchers, their field sites, and the project as a whole.

My experience as part of the BRPP team constitutes something closer to participation than the traditional anthropological method of participant

observation in that I was not systematically recording my observations of the team at the time. Nonetheless, certain parallels can be drawn between my experience with the BRPP and more traditional ethnographic fieldwork that demands that the ethnographer "share firsthand, the environment, problems, background, language rituals, and social relations of a more-or-less bounded and specific group of people" (VanMaanen, 1988:3). Moreover, VanMaanen (1988) and Reimer (1977) suggest that there is enormous variation in how the mandate of ethnographic research is carried out; they point out that ethnographic reports themselves can occur in a variety of forms and have even occasionally appeared as "retrospective accounts" of a distinct period in a researcher's life not considered fieldwork at the time (Riemer, 1977; VanMaanen, 1988). Reimer goes on to propose that researchers should take advantage of such circumstances as well as "their own unique biographies, life experiences and situational familiarity" as these often serve as important sources for research ideas and data (Reimer, 1977:467). My privileged role as a member of the BRPP research team provides me an emic perspective, an insider understanding of the processes that informed the BRPP.

In this thesis, I have incorporated my experiences with the BRPP in several ways. My discussion of the BRPP documents (presented in chapter four) is imbued with personal observations drawn from conversations with the researchers themselves, from diary entries describing trips to the field, records kept for work-related tasks, and my own experiences as part of the project team. Additionally, at the end of my discussion in chapter four, I take a reflexive look at my participation in the BRPP and reflect on how this has shaped my approach to the images.

Part discourse analysis, part personal experience, my discussion of the BRPP incorporates a variety of disciplinary methods, insights, and approaches in order to shed light on questions about how we understand the landscape of Jasper National Park. Little did I know when I began working for Dr. Higgs in the summer of 2000 that I would be writing a reflexive account of my work with the Bridgland Repeat Photography Project research team, or conducting discourse analysis of the BRPP website. However, it was only when I began to

look reflexively at my role in the BRPP that I recognized the importance of cultural choices in the production of the story that the BRPP (myself included) was telling about Jasper.

Chapter Three – Vision of an Ordered Land(scape)

> To experience a place is to want to communicate about it. . . Of all the media of communication about geography, the map is probably the first that comes to most people's minds, and it has certainly been one of the most basic and long-lived. (Ryden, 1993:19)

By the time M. P. Bridgland arrived in Jasper Forest Park in 1915, Europeans had been trying for several centuries to describe, chart, and otherwise portray the formidable landscape around Jasper. Explorers, fur-traders, artists, mountaineers, and tourists all chronicled the landscape in different ways, from travel journals to river maps to landscape paintings. Morrison Parsons Bridgland, as a surveyor for the Dominion Lands Survey of Canada, created the first topographic map of Jasper and thus added a thick layer to the accumulation of knowledge. To accomplish his task, he first conducted a photographic survey of Jasper in the summer and fall of 1915 collecting photographs and measurements from 92 prominent points on summits, cliffs, and in the valleys. Then, Bridgland created a hand-drawn topographical map (published in 1917 as 6 map sheets) that created a new view of the park (see figure 3.1 for a section of this map).

Today, as in Bridgland's time, the usual perception of what maps are is based in our faith that maps, in fact, constitute accurate geographical representations of some aspect of reality and that they are correct rational models of the world. Indeed, the project of the Dominion Lands Survey was proudly considered to be "unsurpassed for precision of execution" (Thompson and Semper, 1975: 557). The DLS's vision of an ordered land, however, was played out very differently in the mountains than it was on the prairies. Cartography aims to be a "'science', that is, a discourse of technical, objective, rational, Enlightenment knowledge" that can map an equally objective world in mathematical terms (Duncan and Ley 1993:1). Because maps function under the role of neutral science, it is not hard to imagine why so often we take them for granted, neglecting to ask what *else* maps portray. And, what do they leave out?

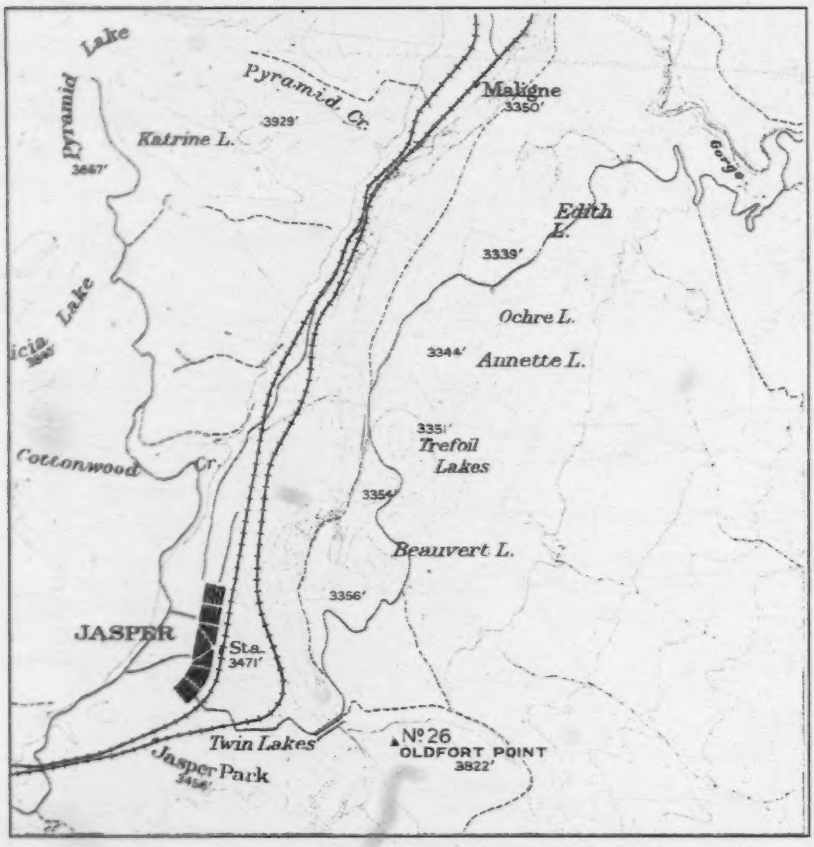

Figure 3.1
Section of the 1917 map that Bridgland produced using photographs from his 1915 photo-topographic survey of Jasper. This selection shows the Jasper townsite, the Athabasca River Valley, and both railways in the central section of the park.

To scholars such as Harley, Duncan, Ley, and Cosgrove, maps are also "social constructions of the world expressed through the medium of cartography. Far from holding up a simple mirror of nature, maps re-describe the world" in value-laden, cultural terms (Harley, 1990:4). As such, maps are not simply objective, rational copies of reality, but rather, cultural artifacts, reflections of the worldviews of their creators. In this sense, mapmaking is as much about cultural ideals, politics, preferences, and priorities as it is about the objective representation of an equally objective reality.

Both perspectives considered it would seem that to create a map is to create a representation that incorporates elements of culture and of the physical environment in question. Discussing representations of place, James Duncan emphasizes the importance of both the site to be represented (the geographical reality of a place) as well as the site (cultural, political, historical, theoretical situation) from which the observer sees the place (Duncan, 1993). In other words, the art and science that is mapmaking is influenced greatly by both the perspective of the mapmaker as well as his physical location in the world. Part cultural construction, part experiential observation, maps are uniquely placed between "science and art, between documentation of reality and an interpretation of it, between pragmatic and imaginative" (Campbell, 2001:41).

In this chapter I examine Bridgland's 1917 map as an artifact of the encounter between the Dominion Lands Survey and the landscape of Jasper Forest Park. Read as an account of both culturally constructed views of the world and an engagement with the physical reality of Jasper, Bridgland's map can shed light on how the landscape of Jasper was represented according to the authoritative voice of the Dominion Lands Survey of Canada. Additionally, Bridgland's map can be seen to reflect the contradictions and paradoxes of the dual mandate of Canadian national parks.

3.1 The Dominion Lands Survey and the Opening of the West

> We are not seeking the trappings of knighthood, the garb of the cleric, the gown of the jurist nor the mortarboard of the professor . . . but we are engaged in preparing the way for setting loose the vast forces of progress and development. (Dominion Lands Surveyor C .F. Aylsworth, 1915 as cited in Thompson and Semper, 1975)

The need for surveyors of Dominion lands was established in 1869 when the Dominion of Canada purchased from the Hudson's Bay Company the rights to the vast expanse of land then known as Rupert's Land, which encompassed all of the western prairies and extended to the Arctic in the north (Thompson and Semper, 1975). At this time, with the fur trade on the decline, the government had begun to regard the landscape of the west as a place to civilize and settle.

In 1872, with natural resources and settlement of the west in mind, the Canadian government passed the Dominion Lands Survey Act, creating a framework for the distribution of land to settlers and a method for systematic inventory of the west. In addition, the 1872 Act stipulated that only highly qualified graduates of surveying programs should be eligible for appointment as Dominion Lands Surveyors. The elite group of men of the DLS were thought of, and thought of themselves, as "trail blazers" whose duties lay in "transforming the prairie wilderness in Canada into ordered settlement" (Thompson and Semper, 1975:556). By all accounts, the rapid survey of this vast, uncharted territory that would follow is one of the "great civil engineering triumphs of all time" (Thompson and Semper, 1975:556).

Transformation took place on the prairies by way of the rectangular systems of survey as well as railway lines and roads, which resulted in some 200,000,000 subdivided acres (Thompson and Semper, 1975). The government aimed to survey and define the land in such a manner that settlers would be certain of the boundaries and easily able to establish their ownership of the land (Thomson, 1967). The Dominion Lands Survey system also involved the creation of a method for the Dominion to quickly and easily identify any block of farmland it governed (Thomson, 1967). Of course, the landscape of the prairies, with relatively little relief, was particularly suitable not only to farming, but also to the

Figure 3.2
Aerial photograph of the landscape near Andrew, Alberta, showing the physical remnants of the late 19th-century prairie land surveys. Taken by Susan Webb, 2001.

division of land into townships. Given the lack of mountains, valleys or other topographical features on the prairies, it was possible for surveyors to superimpose a grid of straight lines on the landscape. The construction of townships and roads spread rapidly across the prairies creating a giant checkerboard. The remnants of this engineering triumph, still visible on the landscape today, are illustrated in figure 3.2.

> Stretching out to far horizons in all directions fertile farmlands can be seen laid out in checkerboard fashion . . . such is the impressive, memorable spectacle that unfolds over hundreds of miles of landscape, challenging the viewer's imagination and arousing wonderment. That pattern of land division, so reminiscent of the checkerboard, is the visible signature of one of the great civil engineering triumphs of all time. (Thomson, 1967:26)

By the end of the 19th century, the project of the Dominion Lands Survey had left impressive and undisputable marks on the prairie landscape. Anyone flying over the Canadian prairies today will see the pattern that is the legacy of the Dominion Lands Survey. These marks are both physical and ideological: the prairies had been subdivided, the landscape civilized and the wilderness tamed.

However, the survey's triumphant push westward was stopped at the foothills of the Rocky Mountains. The rugged wilderness of Jasper and the eastern slopes was not easily reduced to the standard means of conventional mapping. It was evident that traditional survey methods would not be sufficient to map the uncompromising terrain that lay ahead. Compared to the western interior, the Rocky Mountain conditions were reversed. Topographical features were both numerous and prominent and to lay out township and section lines would take considerable time and expense (Thomson, 1967). Additionally, it was becoming increasingly evident that the region would be valuable territory for resource extraction and tourism. Maps of the mountain regions were urgently needed as points of departure for opening up mining claims, timber limits and occupation and development (Thomson, 1967).

By the 1880s, Dr. E. G. Deville, Surveyor General for the Dominion Lands Survey of Canada, had (based on the discoveries of French Col. A. Laussedat)

already developed methods and equipment for a photo-topographic survey method. First used in Canada in 1886, Deville's method entailed photographing an area from multiple survey stations before returning to the survey office (with the developed images and theodolite measurements) to complete the topographic map using triangulation to measure distances and elevations of points. While there were some initial difficulties using camera equipment in mountain conditions, by the late 1880s, most Canadian surveyors working in the Rocky Mountains relied on this method as one of the best and least expensive means of surveying mountainous terrain (Thomson, 1967). Summing up the DLS achievements under the Deville system, Thomson notes that surveyors McArthur, King, Wheeler and Bridgland between 1886-1906 and1911-1923 captured a total of 54, 260 km^2 of mountainous landscape on film and in maps (Thomson, 1967).

Morrison Parsons Bridgland, a surveyor for the Dominion Lands Survey of Canada, set out to survey and map the newly established Jasper Forest Park in the summer of 1915. This survey was not Bridgland's first in the Canadian Rocky Mountains. By the time he set out for Jasper in June of 1915, he was a seasoned veteran of mountain surveying having worked as an assistant for A. O Wheeler from 1902 to 1909 surveying the main range of the Rocky Mountains as well as the Selkirks, and then, as Chief of Party from 1909 on. The nature of his work and his love for mountaineering also led Bridgland to become a founding member of the Alpine Club of Canada in 1906. In his capacity as Chief Mountaineer, Bridgland would lead hundreds of ACC members at the Club's annual camps as well as claim over 60 first ascents of his own in the Canadian Rockies (Zezulka-Mailloux, 2003).[1] Additionally, in a twist that foreshadows the Bridgland Repeat Photography Project's focus on landscape change in Jasper, Bridgland himself was also very interested in landscape change in the Rocky Mountains. According to Zezulka-Mailloux (2003), Bridgland was especially interested in changes such as the disappearance of lakes, changes in the outline of glaciers, and rock slides (Zezulka-Mailloux, 2003). In an interview with Zezulka-

[1] Zezulka-Mailloux (2003) is a manuscript under revision and will likely be published in 2004 under the title *Mapper of Mountains* and authored by Gabrielle Zezulka-Mailloux, Ian MacLaren and Eric Higgs. In this thesis, I cite the incomplete manuscript by Zezulka-Mailloux as it appeared in 2003.

Mailloux, Margaret Hess, Bridgland's niece, made a comment that summarized her uncle's interest: "rocks move" he would say, "mountains change even in just a few years" (Zezulka-Mailloux, 2003:130).

In 1915, using Deville's photo-topographic survey method, Bridgland and his team of five (an assistant, two horse packers and two cooks) conducted the first comprehensive topographic survey of Jasper Forest Park. Bridgland's team was assisted by a second climbing team led by A. E. Hyatt who worked separately but under Bridgland's direction (Zezulka-Mailloux, 2003). In this manner, they could cover twice as much ground. The survey proved to be quite an impressive undertaking as over the course of the summer months, the two teams team set up 92 survey stations, many of them involving first known ascents of mountains, while others were established on cliff edges and prominent points on the valley bottom. From each survey station they took a series of photographs to compose a panoramic view of the surrounding scenery. With these 735 images and notebooks of corresponding theodolite measurements, Bridgland created the first topographic map of the area. Figure 3.3 illustrates part of the technical method Bridgland employed to construct his map based on photographs.[2] Once completed, his map titled *Map of the Central Part of Jasper Park, Alberta,* covered 2300 km^2, nearly one quarter of the area of Jasper Forest Park.

The transformation of the Jasper landscape by the Dominion Lands Survey was different from the transformation that had taken place in the prairie regions. While the prairie surveys had resulted in a physical grid of neatly subdivided units, townships and roads, Bridgland's survey of Jasper resulted in a series of photographs and a set of six topographic map sheets. The practical uses for Bridgland's map seemed clear; it would be used to establish mining claims, timber limits, occupation and development. But what was this map *really* telling people about Jasper Forest Park? How did it make sense of the Jasper landscape? To more closely examine these issues we need to delve into what Harley calls the "narrative qualities of cartographic representation" (Harley, 1989).

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[2] For a detailed account of the methods used by Bridgland in his 1915 survey of Jasper, see Bridgland, 1924 and Thomson, 1967 v.2, Chapter 8.

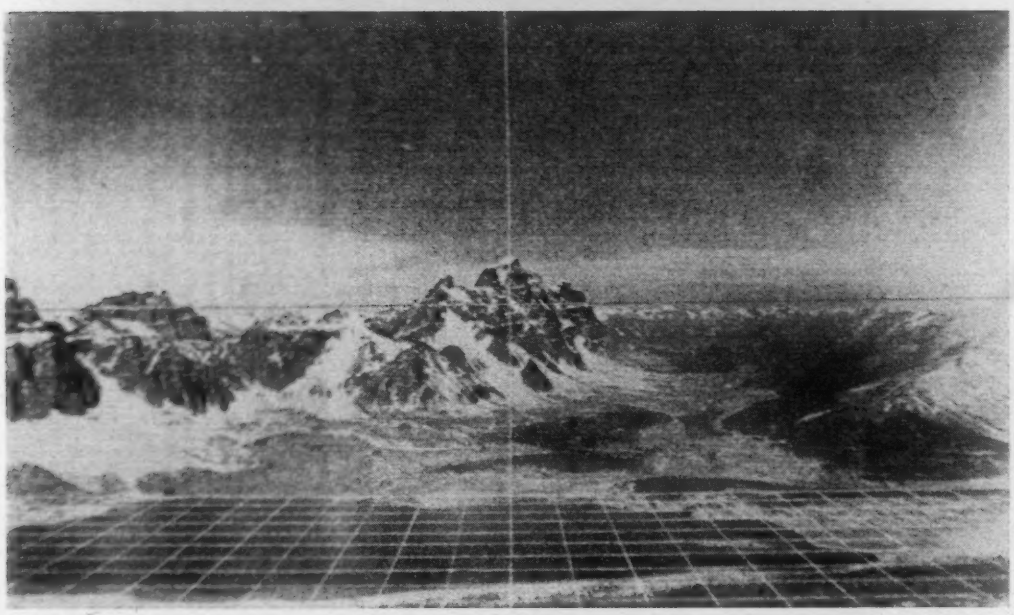

Figure 3.3
Example of the grid technique applied to one of Bridgland's 1915 survey photographs of the Tonquin Valley, Jasper Forest Park. This photograph was taken from station number 11, Mt. Clitheore and appears in M. P. Bridgland's 1924 *Photographic Surveying*.

3.2 Bridgland's View of Jasper: Examining the Content of his Map

Examining the content and context of Bridgland's 1917 map allows us insight into what the DLS saw as the important, survey-worthy features of Jasper Forest Park. Harley notes that "the map maker merely omits those features of the world that lie outside the purpose of the immediate discourse" (Harley, 1989:11). The immediate discourse, in the case of Bridgland's topographical survey of Jasper, focused on creating a detailed description of particular features within the park. This is not to say that he captured *all* the features of the landscape, but rather those of interest to the Dominion. Like all maps, Bridgland's was

> a culmination of choices made among choices every one of which reveals a value: not the world, but a slice of a piece of the world; not nature but a slant on it; not innocent, but loaded with intentions and purposes; not directly, but through a glass; not straight, but mediated by words and other signs; not in a word, as it is, but in . . . code.
> (Wood, 1992:108)

The Dominion's interest in the photo-topographic survey of Jasper in 1915 lay mainly in the creation of maps for the administration of economic development of their new park (Gainer, 1981; Thomson, 1967; Zezulka-Mailloux, 2003). It follows that a map with such interests in mind would feature themes relevant to alpinism, tourism, transportation, and resource extraction.

Titled *Map of the Central Part of Jasper Park, Alberta*, Bridgland's series of six topographic map sheets covers the region that occupies both the physical and figurative center of the park. While the boundaries of the park have shifted several times since 1915, Bridgland's map still occupies this center region of the park including the broad Athabasca Valley and the town of Jasper situated near the confluence of the Athabasca, Miette, and Maligne rivers.

The same legend appears on all six of Bridgland's 1917 map sheets of Jasper and is depicted in figure 3.4. Named "References", it shows symbols for mountain peaks, glaciers, talus, railways and stations, roads, and trails.

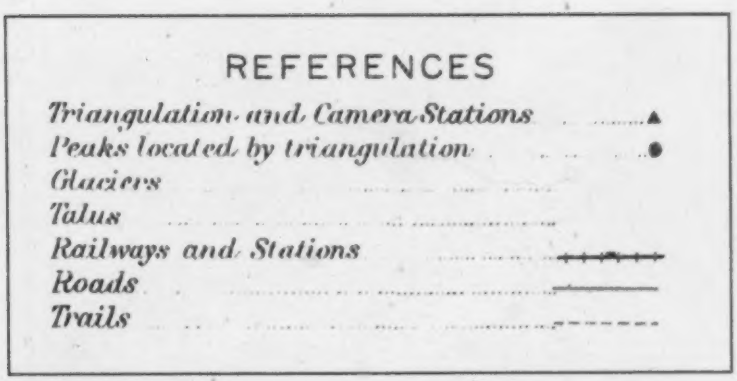

Figure 3.4
References from Bridgland's 1917 map of Jasper Park.

On the map, the peaks, glaciers, railways and station are all labeled with names whereas the roads and trails, while unlabelled, are drawn in red. Notably, Bridgland's camera stations are also included.

The scale of the printed versions of Bridgland's 1917 map is 1/62,500. Many of the early Canadian surveys were made at a 1/20,000. In his book on photographic surveying, Bridgland suggests that maps should be drawn at larger scales (such as 1/40,000 or 1/20,000 with a contour interval of 100 feet) for accuracy and detail (Bridgland, 1924). He notes that such maps can easily be reduced in size when printed creating a much better representation than if one was to draw a map at a small scale and have it enlarged (Bridgland, 1924).

The "natural" features on the map include features that were standard on contemporary DLS maps of the mountains (Thompson, 1967). While glaciers and talus are the two natural features noted in the references, mountains, lakes, rivers, creeks and wetlands also appear on the map. These features were drawn using the color scheme that was also standard for DLS maps at that time – blue for rivers, lakes and glaciers, and brown for the contour lines that form the mountains. These more "neutral" colors are highly contrasted with the red and black used to represent human presence such as roads, trails, and railways that run through the center of the valley. Most peaks on the map are named and their elevations shown (contour interval 100 feet). Additionally, rivers are labeled as well as many creeks and lakes.

While names that appear on Bridgland's map, like Medicine Lake and Brule Lake, strongly suggest indigenous beliefs or practices attached to the region, First Nations toponymy is not represented on Bridgland's map of Jasper.[3] In this sense, Bridgland's account of Jasper effectively erases much of the long First Nations history in the park. Natural features (glaciers, mountains, rivers, creeks, etc.) labeled with European names focus on historical European encounters with the landscape of the region. For instance, the mountain bearing the name Roche de Smet was named for a Belgian missionary who traveled through Jasper in the late 1840s performing marriages and baptisms for many of

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[3] For an account of First Nations history in the park, see Gerhard Ens and Barry Potyondi's 1986 report titled *A History of the Upper Athabasca Valley in the Nineteenth Century*.

the Iroquois homesteaders in the region. Other place names leave clues about the appearance of the landscape. For example, names like Meadow Creek and Prairie de la Vache suggest a particular type of open, savannah vegetation that, as MacLaren suggests, might appeal especially to European travelers (MacLaren, 1999).

Bridgland's own experiences in Jasper are also represented in the map's toponymy. For the early part of August 1915, Bridgland and his crew had been plagued by hot weather and black flies in Jasper's Athabasca valley. To escape the heat and the flies, they moved their camp above the tree line to a grassy alpine meadow that was cool, free of flies, and possessed of a good water source. According to Zezulka-Mailloux (2003), the place must have seemed a "veritable heaven" after the plague of black flies and heat in the valley (Zezulka-Mailloux, 2003:28). When Bridgland later set up a camera station overlooking the meadow, he named it Fiddle Creek West, but scribbled the word "utopia" in the upper corner of the page. On this suggestion, the mountain was named Mount Utopia (Zezulka-Mailloux, 2003).

The place names on Bridgland's map tell many stories. Tales of the early explorers, missionaries, and traders of Jasper likely contributed to the romantic historical appeal of the park for tourists. A 1923 Department of the Interior re-issue of Bridgland's Jasper map came with a tourist brochure[4], which boasted that

> For scenic beauty Jasper is unrivalled. The wide open grassy valley of the Athabaska, almost bisecting the central part, offers an unusual panorama not soon forgotten – great expanses of open meadow lands, grassy valley and an extended view of the mighty Athabasca – the old time trail of the romantic fur brigades. (Department of the Interior, 1923)

The natural features on the map, in their neutral color scheme, literally form a border around the Athabasca valley and serve nicely as a scenic backdrop for the romantic human history as well as contemporary cultural features of the

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[4] This 1923 edition of Bridgland's maps includes a telegraph office and postal office, presumably for the convenience of tourists.

valley. While place names revealed romantic traces of human history reaching into the wilderness of Jasper, to readers of Bridgland's map, what was most obvious was the pattern of vast, empty, unexplored spaces surrounding the seemingly few human developments in the Athabasca valley.

Of particular interest to my examination of Bridgland's map is the representation of these cultural features. These features included both the Canadian Northern and Grand Trunk Pacific railways, numerous railway stations, roads and trails, Pocahontas and Jasper town sites, Jasper Park Collieries, an unnamed chalet, coal mines, sawmills and hot-springs resort developments. These features were emphasized using standard color, placement and labeling techniques. For instance, the size of the lettering on Jasper town site (depicted in figure 3.5) points to the importance of the town within the park. Indeed, in his 1917 *Description of & Guide to Jasper Park*, Bridgland describes the town of Jasper as the "capital of this mountainous kingdom" (Bridgland, 1917:13). These cultural features (railways, stations, roads, trails, towns, mines etc.) literally run through the center portion of the map as though this string of human-made constructions is indeed the centerpiece of the park. Bridgland's explicit inclusion (and emphasis) of these features reflects the purpose of the map and is consistent with the economic and administrative interests of the government and with notions of progress, development, tourism and the civilization of the west that drove the Dominion Lands Survey at the beginning of the 20th century.

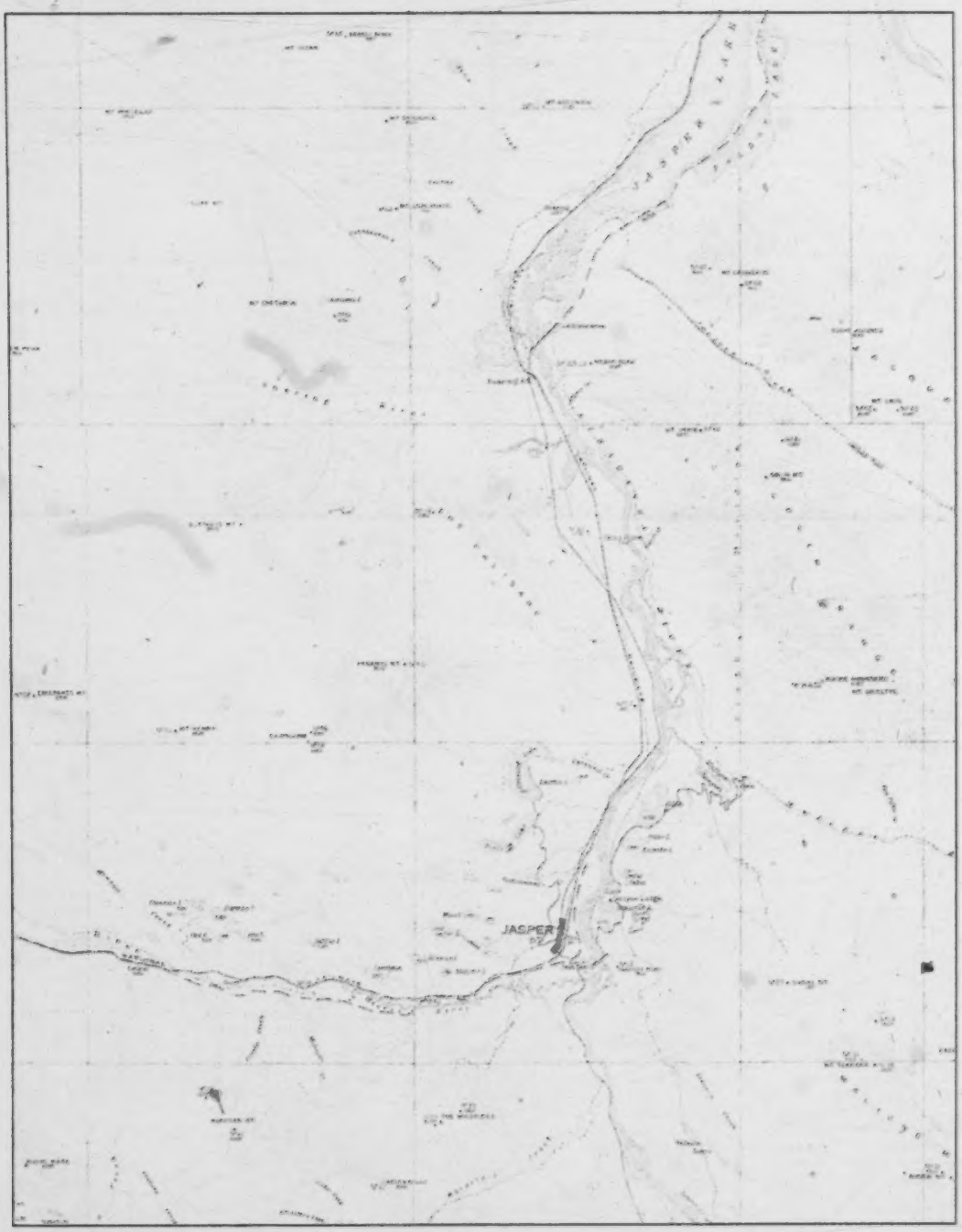

Figure 3.5
Central part of the 1923 reprint of Bridgland's 1917 map showing the Jasper townsite and the Upper Athabasca River Valley

3.3 Making Sense of Bridgland's Map

> Here is your map, unfold it, follow it . . . it is only paper and ink. But if you think a little . . . you will see that these things have seldom joined to make a document so modest and yet so full of histories of hope or sagas of conquest. (Anonymous author, 1957 cited in Thompson, 1967:130)

So, what can Bridgland's map tell us about Jasper? MacEachren suggests that maps are "as much a reflection of (or metaphor for) the culture that produces them as they are a representation of a section of earth or activities upon it" (MacEachren, 1995:10). As an authoritative representation of JNP, Bridgland's map was socially, not individually, produced – in other words, it emerged within the particular social, historical, cultural circumstances of the early 20th century. Suzanne Zeller notes how throughout the British Empire, from the 1830s until after 1900, "Victorian culture attributed increasing importance to science, the rational study of nature, as a dominant mode of thought" (Zeller, 1996:1).

Bridgland had arrived in Jasper to play out the dominion's view of an ordered landscape and to pave the way for civilization to advance into the wilderness. Surveyors (like Bridgland) were seen as "trail blazers" who were among the very first to be called upon in the early settlement of a region and who became "indispensable factor[s] in laying out farmlands, communities, highways, railways and bridges" (Thomson and Semper 1975: 564). As the "first" observers and measurers of the landscape, these surveyors became the symbolic bearers of civilization to the wild, unknown landscapes of the west. Bridgland's map also focused on features such as railways, roads, mines, sawmills, and town sites. In his 1917 *Description of & Guide to Jasper Park*, Bridgland remarks that "the two places of principal importance within the park are [the towns of] Jasper and Pocahontas" (Bridgland, 1917:31). These human features are contrasted with the creeks, mountains, glaciers, and empty spaces that surround them. Indeed, much of the area on Bridgland's 1917 maps is left blank (unmapped), while the natural features he includes are those that most closely border the concentration of white human activity in the valleys.

All maps have a purpose, and the content of a map depends upon its purpose (Kaiser and Wood: 2001). The purpose of Bridgland's map was to

present detailed information important to tourists, resource extractors, and government administrators of the park. To this end, and armed with a new method by which he could accurately capture the topography of Japer Park, Bridgland created the first comprehensive topographic map of the region - the most detailed representation of the landscape to date. But the best technology cannot capture the world. To make a functional map, it is necessary to exclude some things in order to focus on others. Because of this, many features that existed in the park (features such as Métis homesteads, vegetation, animal trails etc.) were necessarily excluded. However, because the particular intentions and interests of the DLS were not made explicit to readers of Bridgland's map, and because of the scientific rhetoric of maps (as accurate representations of the world) the particular work that these maps did (their main themes) was concealed.

As Wood notes, "the interest unavoidably embodied in the map is thus disguised . . . as natural; it is passed off . . . as Nature itself" (Wood, 1992:76). According to Duncan and Ley, mapmaking is a practice that imposes social norms onto the landscape, thereby objectifying them, rationalizing them and making them "seem like objects of nature through the legitimising tropes of the discourse of science" (Duncan and Ley 1993:1). By capturing the landscape with such scientific accuracy and implied objectivity, Bridgland's map served to naturalize particular cultural features on the landscape of Jasper Forest Park. As such, parks became a place where tourists *and* resource extractors were meant to be, echoing the dual mandate of Canadian national parks.

At this point "we begin to see how maps, like art, become a mechanism for defining social relationships, sustaining social rules, and strengthening social values" (Harley, 1989:7). At the same time as it mapped out the advancement of tourism and the resource industry, Bridgland's map was also reinforcing cultural notions of "wilderness" and "civilization" in the park. The Dominion Lands Survey was in the business of charting out wild, unknown territories. As such, Bridgland's very presence in Jasper Forest Park helped to create an identity of wilderness for the park. At the same time, and by contrast, Bridgland's map focused on the more civilized amenities of the park such as hot-springs resort

developments, railways and towns. The travel brochure, which accompanied the Department of the Interior's 1923 re-issue of the 1917 map, seems to confirm this notion. While it calls the park "an immense mountain wilderness" and notes that "a large portion of Jasper Park is yet unexplored", it also brags of the park's other inducements to holiday seekers including "the use of a fine eighteen-hole golf course, trail riding, fishing, mountain climbing, bathing and other amusements" (Department of the Interior, 1923).[5] Official DLS accounts of Jasper (including the 1917 and 1923 maps, as well as the travel brochure that accompanied the 1923 map) call attention to the "immense mountain wilderness" of Jasper and promulgate timeless, romantic notions o f the park for tourists. Indeed, the maps themselves are timeless, unchanging representations of the landscape. Contradictory as it may seem, both the demarcation of wilderness and the beginning of its transformation into a playground are naturalized in Bridgland's map; a map helped to create a picture of a landscape where development and progress could be seen advancing into the wilderness.

Up to this point, I have examined Bridgland's map as a socially produced account of the landscape of Jasper. The map, in this sense, was largely determined by the requirements, formats, and ideals of the Dominion Lands Survey. However, more than simply a cultural construction shaped by the DLS, Bridgland's map is also an artifact of his own experience in and engagement with the landscape of Jasper.

Though the term "topographical survey" by its definitions implies a science universal in scope, objective, distanced, and detached from the landscape being observed (Duncan and Ley, 1993; Harley, 1989; Wood, 1992), this is never the case. While Bridgland and his peers sought to live up to their titles as topographical surveyors, they were never completely detached from the reality of the environments in which they found themselves. Rather, they were very much engaged with the landscape of Jasper. Indeed, by marking his camera stations on his map Bridgland effectively acknowledged his own presence on the landscape

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[5] While I have not investigated this, it seems unlikely that Bridgland had any role in the 1923 re-issue of his map. The travel brochure was likely authored by someone at the Department of the Interior.

and located himself in his representation of Jasper. Bridgland also marked his presence on the landscape itself. At many of the photo stations he occupied, Bridgland and his team constructed a rock cairn where their tripod stood, both to mark their survey location and to act as a marker that could be seen from other survey points. Many of Bridgland's cairns still stand today, marking the place where he stood 88 years ago.

Additionally, excerpts from his 1924 publication *Photographic Surveying*, suggest that Bridgland was very engaged with, and not at all detached from the landscape he was surveying:

> There are many difficulties encountered in the field, among the first of which are those involved in climbing. On the lower slopes there is dense underbrush and windfall to struggle through, and higher up, snow slopes and glaciers to cross, rock cliffs to climb and difficult arêtes to traverse. On the summit, the surveyor must work with an instrument set up on a pile of loose rock on the most exposed part of the peak, frequently suffering severely from the cold and wind while doing so. (Bridgland, 1924:18)

The real, rugged nature of the landscape itself (those steep limestone cliffs, large boulders, rocky ridges and promontories) determined Bridgland's survey method (photo-topographic survey), literally positioning Bridgland within the landscape and shaping his perspective of the park. Additionally, Bridgland chose each of his camera stations based not on their particular aesthetic appeal, but rather, on the physical geography of the place. In his 1924 publication, Bridgland notes,

> When in the field, it is important to select those points which give the best views of the surrounding country. This does not mean that the highest peaks are always the best. In photographs taken from very high peaks, the surrounding country often appears dwarfed, and the detail does not show up as well as in those taken from more moderate elevations (Bridgland, 1924:18).

To ensure that he would have all the "detail" he needed when he returned to the survey office to draw his map, it was vital that Bridgland consider the composition of every image carefully. For instance, the triangulation methods

used to accurately measure elevations and distances required that prominent points on the landscape (such as prominent ridges, or streams) be identifiable in at least two photographic views (M. P. Bridgland, 1924). Faced with these types of restraints, and a mandate to create an accurate map, Bridgland would have had in mind very specific objectives when he set out to photograph Jasper. Unlike other earlier surveyors of the west who photographed points of interest on the landscape, Bridgland had to capture a view of the landscape as a whole. His goal of creating an accurate map of the landscape along with the limitations of a huge camera and glass plate negative and the rugged, inaccessibility of the Jasper landscape all likely contributed to the photographic views Bridgland created of Jasper.

3.4 Summary

The pragmatic and the imaginative, the experiential and the constructed, and the documentation of reality and an interpretation of it are all at work in Bridgland's map. Bridgland had arrived in Jasper to play out the Dominion's view of an ordered landscape, paving the way for civilization to advance into the wilderness of Jasper Forest Park. However, broad cultural notions about the "wilderness" of Jasper were not the only forces that guided the creation of his map. Bridgland's own experience in the mountains of Jasper Forest Park also influenced his survey methods, the content of his photographs, and the final product: his 1917 map.

When we compare the ordered landscape produced by the DLS in the prairies (see figure 3.2) to the sets of photographs and maps produced by the DLS in the mountains, it seems that perhaps the DLS did not quite achieve the production of a comprehensive image of the mountains as "ordered". Bridgland's set of survey photographs and his 1917 map might constitute a symbol of order, but consider the map, 92 survey stations quite randomly arranged. Indeed, the qualities of Bridgland's map have little in common with the ordered landscape the DLS produced in the prairie regions.

To make a map of a place is to try to make sense of that particular place. Part cultural construction, part experienced reality, Bridgland's map provides a

glimpse into the complicated relationship between people and the natural landscapes they try to depict, communicate about, and understand. The message in Bridgland's map is a complicated and contradictory one. It at once confirms the European notion of an unexplored, people-less wilderness (with its many blank, unmapped spaces) and at the same time promotes the incursion of tourism, transportation and industry into this same wilderness. In this sense, Bridgland's map codifies what scholars like Higgs (2003), Lothian (1976), McNamee (1993), and MacLaren (1999), have described as the paradoxical, contradictory or dual mandate under which Canadian National Parks were established at the turn of the 20th century. This purpose, to ensure access for tourists while at the same time protecting the wild, un-peopled spaces that people come to see, reflects the tensions between playground and preserve, a peopled landscape and a wilderness, nature and culture, that persist in Canadian national parks today.

Chapter Four – Looking Over Bridgland's Shoulder

Eighty-three years after M. P. Bridgland surveyed the landscape of Jasper, University of Alberta researchers Jeanine Rhemtulla and Eric Higgs returned to follow in his footsteps. With a large format camera of their own, they re-photographed each of the 735 images that M. P. Bridgland had taken during his 1915 survey of the park. However, while they may have occupied the same vantage points as Bridgland had in 1915, what they saw through their camera lens (and cultural lens) was a very different picture of the landscape of Jasper.

For Higgs and Rhemtulla, the focus was on charting changes in the landscape of a park almost a century old. The 1998-99 photographs, when paired with Bridgland's 1915 photographs, provide a visual record of change in the vegetation, hydrological systems and overall landscape of the park. As part of a comparative set, Bridgland's 1915 survey photographs were given new life as evidence of landscapes past, and their contents re-negotiated as evidence of change.

As snapshots of reality, the paired photographs do provide convincing evidence of landscape change. In this capacity they are recorders of reality in the sense that they contain a "visual trace of the reality at which the camera was pointed" (Harper, 1994:406). However, photographic evidence is never innocent. As Brassaï notes,

> The photograph has a double destiny . . . It is the daughter of the world of externals, of the living second, and as such will always keep something of the historic or scientific document about it; but it is also the daughter of the rectangle, a child of the beaux-arts. (Brassaï, 1968:13)

Photographs are also constructed through various practices, technologies and knowledges (Rose, 2001). As such, photographs, like maps, are conflations of art and science, experience and interpretation, documentation and picture, reality and construction. Where the viewer "locates any particular photograph along this continuum, that is, how he understands it, is determined by more than just the photograph itself" (Berger, 1984:45). William Fox suggests that the particular context of an image allows us to understand how that image is to be viewed:

> So the question of whether we're doing art or science becomes more one of where the work is shown, its context, than anything else. Show the photographs and collateral materials at the Huntington, and it's all about the history of landscape art. Show them in a natural history museum, and they become a record of change in ecosystems.
> (Fox, 2003
> http://thirdview.org/3v/fieldnotes/notes/C24.html)

Outside of their interpretive contexts, photographic images do not speak for themselves. In the case of the BRPP, the two collections of photographic images are set within the context, structure, and design of the website which informs us about the important aspects of landscape change and directs us towards the evidence. Thus, I propose that the website be read as a story, a narrative told from the perspective of the BRPP researchers that draws out what, for them, are the important themes. Read carefully, the BRPP story reveals and reflects both culturally constructed views of the world and an engagement with the physical reality of Jasper. Seen in this way, the BRPP website can tell us as much about how researchers understood the landscape of Jasper as it can about the landscape itself.

By examining the BRPP website, I aim to shed light on how language and images were used to construct this particular account of Jasper. The website can be read as a text that not only mirrors the realities of the landscape of Jasper (through the paired 1915 and 1998-99 images) but that creates its own cultural view of a changing park - defining the landscape according to the dominant paradigm informing ecological research at the end of the 20th century.

Of course, my discussion of the BRPP would not be complete without a reflexive account of my own experiences as part of the BRPP team. This chapter includes insights drawn from conversations and field trips with BRPP researchers, journal entries, as well as personal observations and experiences I gained as part of the BRPP team. Additionally, to conclude the chapter, I take a reflexive look at my participation in the BRPP and reflect on how this has shaped my approach to the images.

4.1 The Bridgland Repeat Photography Project

For many environmental researchers today, Jasper National Park is a landscape threatened by increased demands from tourists and visitors, extensive resource extraction at its borders, and rapid development within the park itself. While the ecological health of Canada's national parks has been a concern to environmentalists and scientists for years, it was with the release of the report from the Panel on the Ecological Integrity of Canada's National Parks in March of 2000, that there came an increased recognition that the ecological integrity of virtually all of Canada's national parks is seriously threatened (Parks Canada Agency, 2000). Subsequently, in October of 2000, a new Canada National Parks Act was passed explicitly stating that "maintenance or restoration of ecological integrity, through the protection of natural resources and natural processes, shall be the first priority of the Minister when considering all aspects of the management of parks" (Canada, 2000).

In the summer of 1996, four years prior to the release of the report from the Panel on the Ecological Integrity of Canada's National Parks, a team of interdisciplinary researchers from the University of Alberta began work on a pilot project in Jasper National Park that they hoped would aid Jasper park managers in their endeavors to protect the ecological integrity of the park. Called the Culture, Ecology and Restoration (CER) Project, this work aimed to "advance a restorative model for park management" which would bring together both ecological and cultural knowledge (Higgs et al, 1999:1). The project incorporated the research of a variety of different disciplines. These included historical, archaeological and oral history research, as well as ecological, palaeoecological, and digital spatial analysis. A synthesizing insight of this interdisciplinary project was that understanding the history of the park would be vital to successful park management (Higgs et al., 1999:1). In the course of their work in the summer of 1996, Jeanine Rhemtulla, a CER research associate (and then graduate student in the department of Renewable Resources at the University of Alberta) was shown a collection of small albums containing prints of all 735 of the photographs taken by M. P. Bridgland during his 1915 topographical survey of the park. The collection of images provided researchers with an important tool for

understanding what the landscape of Jasper had looked like in the past and what types of changes had since occurred.

The following summer, Jeanine Rhemtulla returned to a dozen of Bridgland's 92 survey stations and re-photographed the same views. For her Master's research, Rhemtulla employed the repeat photographs to analyze vegetation change in Jasper's Athabasca River Valley (ARV) between 1915 and 1997. Her comparative analysis of the 1915 and repeat photographs amounted to an "unprecedented account" of 82 years of vegetation history in the ARV (Higgs et al., 1999:59). Rhemtulla's analysis suggests that a number of striking changes have occurred in the vegetation of the lower elevations of Jasper National Park over the past century. She observes that the encroachment of coniferous forests is accompanied by a decrease in the occurrence and extent of deciduous trees, grasslands and younger growth making the valley appear less "patchy" and more "homogeneous" (Rhemtulla et al., 2002). She suggests that these observed changes in vegetation are likely the result of a combination of factors including changes in climate, human activities (such as the construction of transportation corridors and retaining walls along the Snaring River) and, perhaps most importantly, shifts in the fire regime over the past century (Rhemtulla et al., 2002).

Using repeat photography to chart landscape change is not a new practice. It can be traced back to Sebastian Finsterwalder, who in the late 1880s began conducting repeat photographical surveys to monitor changing glaciers in the Alps (Rogers et al., 1984). The method is still commonly used today for illustrating landscape change, most notably by ecologists, geographers and geologists. According to Rogers et al., "repeat photography is the practice of finding the site of a previous photograph, reoccupying the original camera position, and making a new photograph of the same scene" (Rogers et al., 1984:viii).[1] Ideally, photographs will be "exactly matched"; that is to say that they will be taken from exactly the same position at the same angle and at the same time of day (Rogers et al., 1984:xii). As Rogers et al. (1984) demonstrate with

[1] For a detailed description of the methods of repeat photography, see the introduction of Rogers et al., 1984.

their extensive bibliography of repeat photography, this method has been widely adopted by many researchers in the natural sciences for conducting analysis of landscape change.

While the method of repeat photography has been used extensively by researchers conducting qualitative and quantitative analysis, repeat photographers have noted some shortfalls of the method. For instance, Rogers et al. note that "despite the virtues of photographs as precise records" their reliability can be an issue (Rogers et al., 1984: xviii). They indicate that original photographs may be unrealistic (intentionally or unintentionally altered), artistically embellished, or unrepresentative of the context in which they were taken (Rogers et al., 1984:xix). Additionally, they note that when one compares photographs, mismatched photographs can cause problems for interpretation (Rogers et al., 1984:xix).

Regardless of these problematic aspects of repeat photography, the method has long been recognized as a valuable means for charting landscape change in the Canadian Rocky Mountains. The following statement, made in 1918 by the Photographic Committee of the Alpine Club of Canada (of which M. P. Bridgland was a member), demonstrates this recognition:

> The value of photographic records cannot be overestimated, and increases as they become older. It devolves upon every member of the Club who uses a camera in the mountains to see that nothing which may be of interest escapes him and that all such records, no matter how trivial they may seem now, are placed at the disposal of the Club for future reference. (Wates, 1919:14)

Indeed, as it happened, Bridgland's 1915 survey photographs provided an excellent reference point for University of Alberta researchers interested in analyzing landscape change in Jasper in the 1990s.

> The Bridgland photographs, 735 of them in total, have become an extremely valuable visual record of the state of Jasper National Park in its early years. Systematically taken and comprehensive in coverage, they are unparalleled by any other early historical records in the area, and by few records series in the Rocky Mountain region as a whole.

(BRPP Website,
http://bridgland.sunsite.ualberta.ca/html/brief.html)

This exceptional sample of images combined with the success of Rhemtulla's early research signaled to the CER researchers that this collection of images could provide a tool for other types of research such as glaciology, geology and research on human impacts in Jasper. The Bridgland Repeat Photography Project (BRPP) was launched in 1998 to complete the re-photography of Bridgland's entire 1915 survey. During the summer seasons of 1998-1999, Jeanine Rhemtulla and Eric Higgs (then Associate Professor in the Department of Anthropology at the University of Alberta) returned to all 92 of Bridgland's survey stations and rephotographed all 735 of his 1915 survey photographs. This method took the researchers out onto the land, situating them within the landscape they were observing. Each survey station became a site of interaction between their perspective, Bridgland's perspective, and the physical landscape. Though they were looking over Bridgland's shoulder, the BRPP researchers viewed the landscape with their own eyes and cultural dispositions.

Change emerged as the organizing narrative of the BRPP story. This focus on change is a reflection of the meta-narrative of change that has dominated the literature of the ecological sciences for the past several decades (Worster, 1995). Environmental historian Donald Worster observes that since the early 1800s, when scientists began to realize how old the planet really was, we have been "looking for a story of change to tell" (Worster, 1995:65). Ideas of stability persisted in the natural sciences, but by the 1960s, ecologists had rejected the notions of a static, dehistoricized nature and themes like disturbance, change, and disorder were adopted to describe natural processes (Worster, 1995). By the 1990s, such ideas had become the dominant interpretive framework of the ecological sciences. Embedded in this discourse of change, the 1915 and repeat images become evidence of changing landscapes, changing cultural practices, changing ideas about wilderness, changing ideas about national parks, and even

changing cardinal directions.[2]

Because the photographs were taken only 8 years after the establishment of Jasper Forest Park, they would allow researchers to examine a landscape shaped by particular values and management practices, thus shedding light on how such values and practices have influenced the landscape of the park. Additionally, the comprehensive coverage of the images in the original collection made large-scale comparison possible. In light of this, BRPP researchers projected that the paired photographs (the 1915 photographs in conjunction with 1998-99 repeat photographs) would be an important resource for researchers in other fields and for public education on landscape change.

It was a serendipitous arrangement with the Computing and Network Services (CNS) department at the University of Alberta that would ultimately lead to the inception and creation of a database containing digital copies of all the photographs accessible to both researchers and the general public via the Internet. As part of this initiative, I was hired in the summer of 2000 as a research assistant with the job of scanning, processing, and digitally archiving both sets of photographs. This involved researching standards for creating archival quality digital images, calibrating the scanner and the monitors, deciding on scanning protocols, and spending countless hours in the Department of Anthropology's Visualization lab with the images themselves. I scanned all 1470 photographs at high resolution (1000 samples per inch) to create the master or archival quality collection. From these master files, 2 additional sets of images were created, a set of medium resolution (300 spi) images as well as a set of low resolution (72 spi) images for the website.

The computer power required to house these three collections of images was provided by SunSITE Alberta at the University of Alberta in Edmonton. SunSITE Alberta is part of an organization sponsored by Sun Microsystems that aims to promote the growth and reach of internet applications and to make academic research available to the public, students, and researchers at

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[2] While I do not take up the idea of changing cardinal directions in this thesis, I thought it worth mentioning. What Bridgland measured as North in 1915 was not North in 1998-99. The difference is likely due partially to inaccurate measurements, but also to declination, the shifting of true magnetic north.

universities worldwide via virtual tours, interactive models, and searchable online databases. SunSITE Alberta provided the BRPP with the server space needed to house the digital images and allowed the BRPP to make the project available via a website.

By the fall of 2000, with the digital imaging completed, the construction of a database and website for the project had became our main focus. Over the course of the next two years, I participated in website and database design meetings with Higgs and Rhemtulla and the CNS team. Once we had established the design requirements, the CNS team built an Oracle database to serve the photographs. Over the winter of 2001 I worked entering contents of Higgs and Rhemtulla's field journals and all the associated field data into the database to be accessible to researchers and the public via queries on the website.

Finally, in the spring of 2001, we launched the BRPP website for the public. Intended as a tool for research and public education, the website contained everything from the collection of paired photographs to field notes, to camera settings for each photo to background information on the project. With this website, a new picture of Jasper emerged.

4.2 Content and Design of the Website, or, How to View the Images

Rose suggests that one of the sites at which an image's meanings are made is the "technological site" (Rose, 2001). In other words, the technology used to present or display an image will have a role to play in the viewer's reaction to or understanding of that particular image. Thinking about the technological site of an image raises a number of questions about how an image is looked at differently in different settings. With this in mind, the BRPP website becomes an important part of the presentation of the 1915 and repeat images as scientific evidence of landscape change.

Examining the content and design of the BRPP website allows insights into what BRPP researchers Higgs and Rhemtulla saw as the important issues associated with the landscape in Jasper National Park. The BRPP team made deliberate choices about what to include on the website and how to include it. Each of these choices, in turn, reveals values and intentions. In the following

section I briefly discuss the content and design of the BRPP website. This discussion, while based largely on the analysis of the website itself, is also informed by my participation in the website design and production. I do not provide a comprehensive description of the website or its structure; rather, I highlight some of the choices that were made with respect to layout and design which I find particularly significant.

The "Splash" page is the reader's first look at the BRPP website (see figure 4.1). The brief text on this page gives an introduction to the project background and points the viewer to the purpose of the project: "to create the largest comprehensive and systematic collection of repeat photographs in Canada and use them to chart changes in the cultural and physical landscape of the park over the past century" (http://bridgland.sunsite.ualberta.ca/). The banner image on the page blends sepia tone (conjuring up the style of older, historical photographs) to a full color image (invoking present-day technology) to create for viewers a sense of change over time. The use of sepia to color half of the image represents an artistic addition to the photograph that historicizes M. P. Bridgland's work and sets it up as a starting point for charting landscape change rather than part of a much longer continuum. The shifting image to the left of the text gives viewers their first look at landscape change through a particularly striking example pulled from the survey photographs. A computer animation application is used to dissolve a cropped section of the 1998 image into that of the 1915 image, maximizing the comparative effect.

Clicking anywhere on the "Splash" page takes the viewer to the index page of the site. The index page welcomes the viewer to explore the site and suggests a number of ways of doing so. The choices listed on this page can all be accessed through the menu bar of the website, but they are organized specifically to give priority to the images. The first option reads: "you might want to go straight to the photographs." Again, the importance of landscape change is reinforced in the quoted remark by Higgs in the left margin that reads: "We intend this as a research tool and as a means for public communication of important issues about landscape change in Jasper" (http://bridgland.sunsite.ualberta.ca/html/index.html).

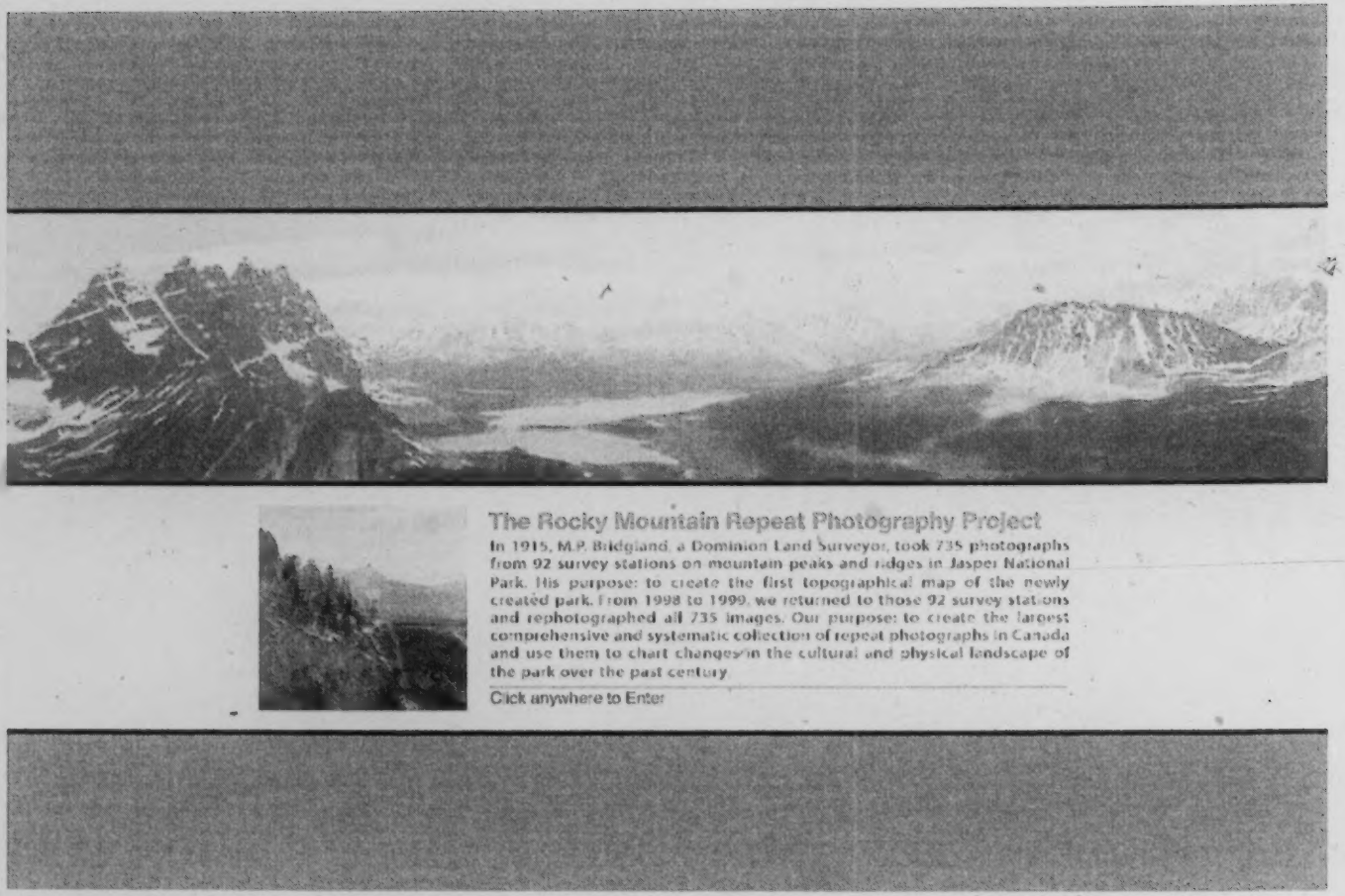
The Rocky Mountain Repeat Photography Project
In 1915, M.P. Bridgland, a Dominion Land Surveyor, took 735 photographs from 92 survey stations on mountain peaks and ridges in Jasper National Park. His purpose: to create the first topographical map of the newly created park. From 1998 to 1999, we returned to those 92 survey stations and rephotographed all 735 images. Our purpose: to create the largest comprehensive and systematic collection of repeat photographs in Canada and use them to chart changes in the cultural and physical landscape of the park over the past century.
Click anywhere to Enter

Figure 4.1
View of the Splash page on the Bridgland Repeat Photography Project website showing the banner image as well as the shifting image on bottom left. http://bridgland.sunsite.ualberta.ca/

The "About" page provides the viewer with background information on the images and helps the viewer to know how the images are to be understood. It first provides some information on the 1915 and 1998-99 surveys as well as the production of the images themselves. The section "How to Use the Site" operates as a road map to the site, outlining the types of information the viewer can find on each page. Additionally, this section describes "How to view the images". The viewer has the option of either (1) using a visual, spatially oriented search using a map of Jasper (suggested for the viewer who is unfamiliar with the BRPP data) or (2) using a search engine based on seven different fields in the database (suggested for researchers familiar with the data they are searching). While the first option more clearly associates the images with the geographical region they represent, the second search option seems to distance the viewer from the place, and the images become just another field of data housed in the database. The section on "Guidelines for Appropriate Use" of the photographs also outlines the appropriate applications of the images by different types of users: project partners, researchers, educators, public, and commercial users.

For the viewer of the BRPP website, a particular set of knowledge is presented which aids the viewer in interpreting the images as evidence of landscape change. The "Research" page provides abstracts of the "core" and "affiliated" research projects associated with the 1915 and repeat photographs. From vegetation change to evolving environmental aesthetics, to changing cultural meanings for the park, the research on this page suggests interpretive frameworks for the images and reinforces change as a main theme for research in Jasper National Park.

The "Resources" page contains links to eight other repeat photography sites and the "Publications" page lists five published articles associated with the BRPP. Both of these pages serve implicitly to reinforce the academic status of the images and to locate work done by the BRPP researchers among that done by their peers.

Perhaps the most revealing pages on the website, with respect to the technological site of the images, are those that display the images themselves. The images (once searched and located) are displayed in pairs to maximize the

comparative effect and to highlight change. The structure of the display page directs the viewer to the most important by foregrounding the visual evidence of change. As figure 4.2 demonstrates, the images are foregrounded, presented sequentially as a before-and-after pair. As Mark Klett observes of repeat photographs, one image by itself is simply another perspective, but "when they are viewed in succession they give the appearance of time in motion, of continuous change" (Klett, 1984:37). Viewed together (side-by-side and in the same interpretive context), the images seem to reach beyond their respective snapshots of time and "refer to the intervening period without actually describing a specific course of events" (Klett, 1984:37). In a recent conversation with me Eric Higgs echoed Klett's observation in remarking that the photographs themselves are "annoyingly static" and everything we think they show about change has be to inferred (personal communication, June 2003).

In the original website design the images were not displayed in pairs, but by themselves in a window. In this way, the 1915 and repeat images could be compared only by opening two separate windows in the browser and aligning them manually. This was seen by the team as an oversight since for us the main purpose of the website was to allow image comparison. At a BRPP meeting following the website launch, team members joked about having missed the boat on that one, and the display format was changed.

While giving priority to the images, the website relegates other descriptions of the landscape of Jasper (such as the repeat photographers' field notes) to the background. Both the field notes (notes made by the repeat photographers at each survey station) and location notes (field notes specifically related to the location of each camera station) are available on the website. However, these written descriptions are not accessible except through the images with which they are associated. It is only once you have searched for and found a set of images that the possibility of getting more information about the survey attempt associated with those images is mentioned. The "More about this station" link on the top of the image display page is the only way to access the field notes.

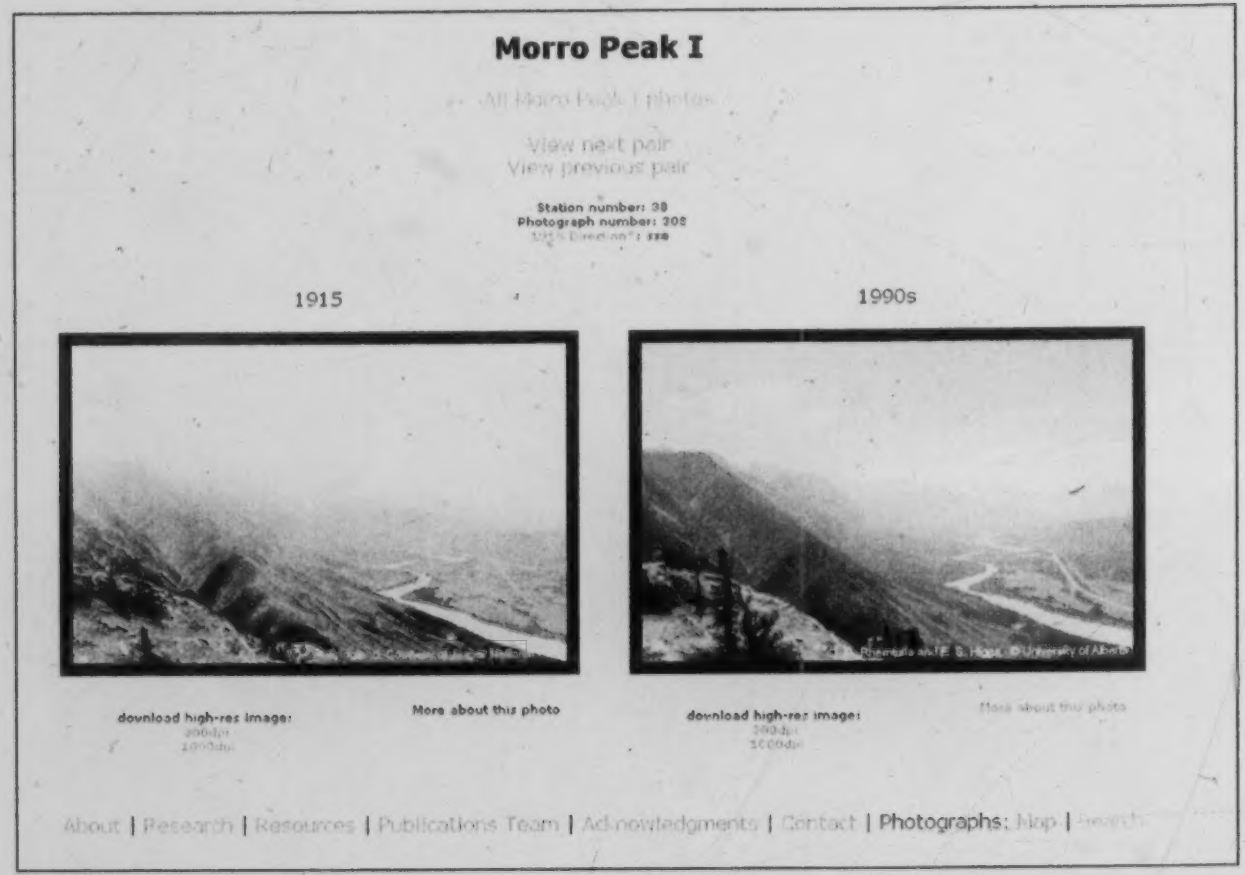

Figure 4.2
Example of the image display page on the Bridgland Repeat Photography Project website showing the 1915 and repeat images as a paired set. http://bridgland.sunsite.ualberta.ca/compare.php?photo_number=308

Even though these field notes are a great resource, full of insights into the thoughts of the researchers, they become an obscured layer of information on a website so dedicated to images.

4.3 Telling A Story of Change

The Bridgland Repeat Photography Project tells a compelling story. Told through the website, the story is about a changing landscape where the past (past landscapes, photographs of past landscapes, past ascents of mountains) is re-discovered and renegotiated in a new context. Bridgland's 1915 images of Jasper were not intended as tools for the study of landscape change. Indeed the DLS did not have an itinerary of landscape change in its mandate to survey the West. The repeat photography project and the website have altered the purpose of Bridgland's photos to suit their needs. By focusing on landscape change, the paired images become before-and-after shots, used to demonstrate that what we see today as the "natural" state of the park is a relatively new view. What makes the story so compelling is the way it is told. The BRPP website conveys a particular account about Jasper which is naturalized or made "true" through rhetorical devices such as the scientific concept of objectivity, and the primacy of visual evidence.

The story told by the BRPP website relies on the primacy of visual evidence to create an authoritative account of the landscape of Jasper. What better way to produce a "true" representation of a place but through the use of photography? From their early days, photographs have been seen as standard recorders of objective, scientific truth. As a recording method for early landscape surveys in the Canadian West, Birrell observes that much of the attraction of photography was its "ability to record exactly. . . the reality, the objectivity and the minute detail presented" (Birrell, 1975:12).

As recorders of truth, it is often assumed that photographs speak for themselves. In repeat photography, the comparison of two or more photographs is equally assumed to speak for itself. However, as Duncan argues, "such claims can be cast in doubt, for example, when people unfamiliar with photographs are unable to 'read' them" (Duncan, 1993:43). In the same way, what photographs

mean, or show, changes in different viewing contexts (Fox, 2003; Harper, 1994). Outside the context of the website, the type of change depicted in the Bridgland Repeat Photography project can be interpreted in different ways. For instance, in a presentation I gave to a class of second-year University of Alberta students, I displayed a slide showing a pair of 1915 and 1998-99 images without their dates (see figure 4.3).

The 1915 image shows a view of Athabasca valley where much of the foreground consisted of patchy grasslands with sparse tree cover composed of a mix of coniferous and deciduous species. The 1998 image shows the valley to be much more densely populated with trees consisting mostly of one species of conifer. When asked, most of the students assumed that the 1915 image was the more recent of the pair. Culturally constructed notions of Jasper as an unspoiled nature influenced the students' interpretations of the images. These notions allowed the students to understand that Jasper was more unspoiled in 1915 than it is today, and, so, had more trees than it does today.

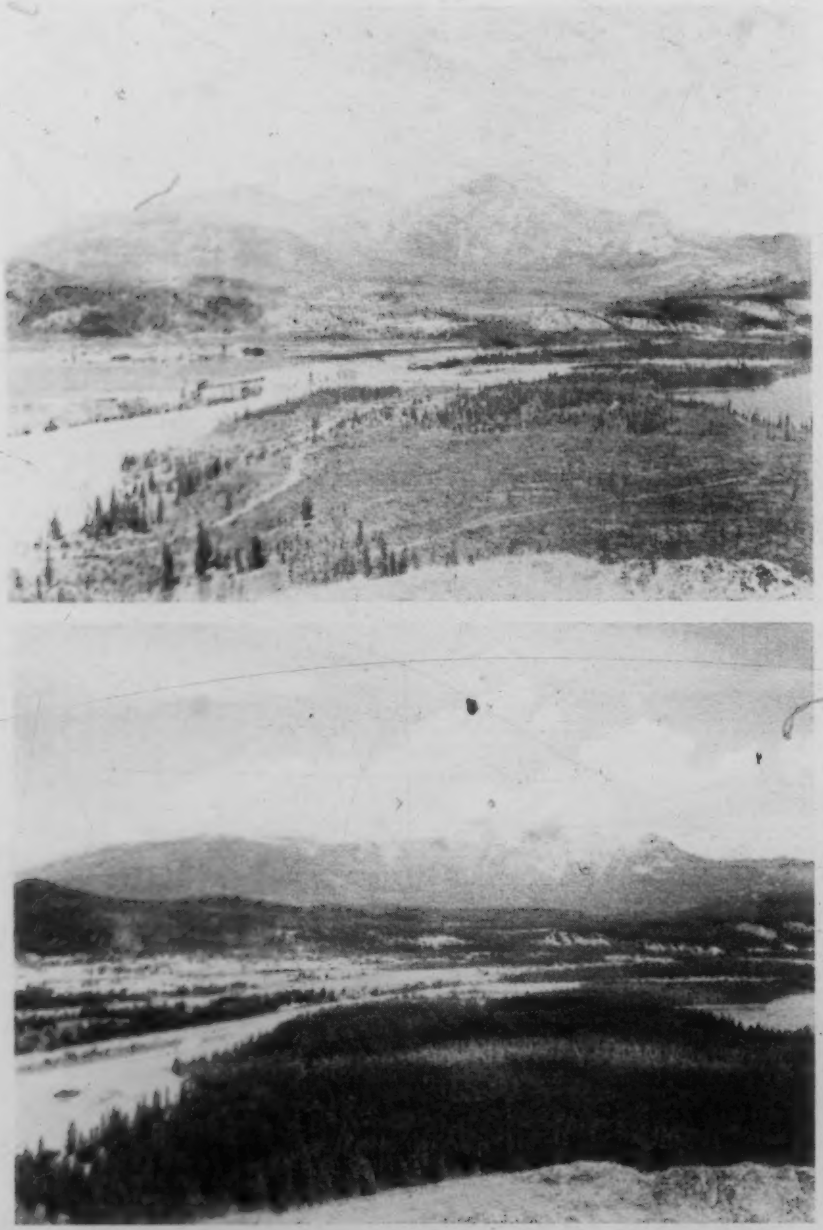

Figure 4.3
Example of paired images showing landscape change. This pair was taken from station number 26, Old Fort Point. The top image was taken by M. P. Bridgland, 1915; the bottom photo by Jeanine Rhemtulla and Eric Higgs, 1998.

The BRPP has proven very important for charting landscape change as well as challenging cultural notions of nature and wilderness in Jasper Park. However, as Worster points out, fixating on change can cause researchers to present a distorted reality (Worster, 1995). Historians and ecologists alike insist that life is full of changes, but, as Worster notes, that does not make change the governing process on the landscape:

> We have not yet discovered what that ruling principle is, or indeed if there is one, so we are to some extent free to choose what we will emphasize: we can choose to focus our attention on change, or we can choose to focus on stability, persistence, resilience, and continuity. (Worster, 1995:67)

Indeed, in classroom lectures, public lectures, media interviews, academic publications, and promotional materials, BRPP researchers privilege the photographs that best illustrate change. However, many of the paired image sets (such as those showing regions at higher elevations) do not show much evidence of landscape change at all (see figure 4.4). Many of these are images of high alpine meadows, high elevation mountain peaks, and rocky ridges and outcrops. That is not to say that change is not occurring in these areas, only that it is not always immediately apparent in the photographs. It is often only after magnifying the digital images that signs of change, for instance, the growth of mosses on a rocky outcrop, become evident. Worster acknowledges that nature changes, but he also notes that "applying the simple word change to the landscape does not help me make any discriminations among the rates of change going on" (Worster, 1995:65). As Higgs has noted, without addressing issues of the scale and rates of change, discussion of landscape change becomes meaningless (personal communication, July 2003).

Additionally, the BRPP's most dramatic demonstration of landscape change (change in vegetation in the montane ecoregion) may indeed be more reflective of two extreme landscapes and not representative of average historical variability. The landscapes pictured in Bridgland's 1915 photographs were largely a result of a huge fire that passed through the park in 1889. The repeat images

Figure 4.4
Example of paired images showing very little landscape change. This pair was taken from station number 13, Thunderbolt Peak. The top image was taken by M. P. Bridgland, 1915; the bottom one by Jeanine Rhemtulla and Eric Higgs, 1999.

show a landscape shaped by 50 years of intensive fire suppression policies. It follows that we must examine the role of the photograph as evidence, and what role culture has to play in this type of evidence.

The story of change, while certainly an important one to tell, is not the only story to be told about Jasper. Like M. P. Bridgland's maps, The BRPP photographs are also reflections of their creators' cultural ideas about the landscape/world. Reading the BRPP website and the images as culturally constructed texts makes it clear that images do not simply speak for themselves. Rather, the meaning of any photograph is "constructed by the maker and the viewer, both of whom carry their social positions and interests to the photographic act" (Harper, 1994:408).

Part of the power of the BRPP repeat survey lies in the implicit detached observation that comes from a representative and unbiased sample.[3] BRPP researchers sought "to create the largest comprehensive and systematic collection of repeat photographs in Canada" (http://bridgland.sunsite.ualberta.ca/), thus capturing a "representative" and "relatively unbiased photographic sampling of the landscape" (Rhemtulla, 1999:18). The BRPP researchers, as surveyors of the landscape, create an authoritative position for themselves as detached observers of the landscape. To survey, by definition, is "to look at from, or as from, a height or commanding position; to take a broad, general, or comprehensive view of; to view or examine in its whole extent" (Oxford English Dictionary Online, http://dictionary.oed.com, accessed April 10, 2003). The geographical position of the BRPP researchers atop mountains provided a commanding view of the landscape below. In a sense, the surveyor becomes the ultimate detached observer, claiming a "totalising gaze, rational and universal, which sees the whole and orders it" (Duncan and Ley, 1993:2).

Of course, one cannot see the whole and be in it at the same time. Only as the hidden, distanced observer, is the surveyor is able to maintain his objectivity. Indeed, in the BRPP website account of the repeat survey, the experiences of the observer/photographer are largely unseen. In fact, in the website display of the

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[3] Here I am drawing a parallel between the fact-producing power attributed by Duncan and Ley (1993) to all topographical surveys and M. P. Bridgland's photo-topographical survey of Jasper.

1915 and repeat images, the position of the observers is completely hidden. Motivated by the mandate to re-create as much of Bridgland's original 1915 gaze as possible, Higgs and Rhemtulla describe, in their field notes, how photographs containing the photographer's thumb were retaken, and how pains were taken to make sure that no people (tourists) appear in the photographs. This mandate, and the desire to capture as much information as possible in the photographs in order to better examine changes on the landscape, shaped the views of the BRPP.

While the text from the original field notes is present on the website, it exists as background to the images, serving mainly to provide supplemental information on the particular location of the photo location. The field notes, as cultural texts, are very informative with respect to the BRPP researchers' particular perceptions of landscape of Jasper. However, they cannot be independently viewed or browsed except in relation to the specific photo station they represent. Organized in this manner, the experiences of the observer/photographer literally become peripheral to the images in the BRPP story.

Of course, part of the power of the BRPP story is drawn from our knowledge that Higgs and Rhemtulla were there. The objective surveyor (as discussed by Duncan and Ley, 1993) is positioned outside or above the landscape being surveyed. While Higgs and Rhemtulla's vantage point did provide a commanding view of the landscape, these surveyors were by no means able to detach themselves from the place. To talk about "occupying" a survey station dismisses the experience of the photographer. For the BRPP researchers, locating a repeat survey station often included several hours of hiking up mountains through snow, carrying heavy loads, and even getting lost. The location images on the website serve mainly to establish the exact camera location, but, as is evident in figure 4.5, they also reflect the embodied experiences of the photographers.

Figure 4.5
Location photograph from the repeat survey showing photographer Jeanine Rhemtulla and the location of camera station number 47, Mt. Cinquefoil. Taken by E. Higgs, 1999.

Higgs and Rhemtulla also experienced a changed landscape as they struggled to photograph through trees that had not been there in 1915, and labored to line up foreground rocks that had since disappeared. In the field notes for Mt. Maccarib II, attempted July 28, 1999 Eric Higgs writes:

> We traversed the ridge from Maccarib II, which involved a small amount of belaying down a very loose prow. The peak is decomposing as I write. This changes my previous view about the short term stability of these mountains. A fine cairn greeted us. Jeanine changed film while David and I located photos.
> (http://bridgland.sunsite.ualberta.ca/station.php?id=10&action=moreinfo)

The researchers were constantly aware of a landscape that was changing around them. In the location notes for Thunderbolt Peak, attempted July 27, 1999 Jeanine Rhemtulla writes: "location 2 is 10 paces at 82 degrees east of the main cairn. Ah, the constant sound of falling rock" (http://bridgland.sunsite.ualberta.ca/station.php?id=13&action=moreinfo).

As the researchers worked to line up their photograph with Bridgland's, they also contemplated the landscape change they saw through the lens. On August 4, 1998 Jeanine Rhemtulla writes:

> Out today with Ian MacLaren, Eric and Keith. It is hot, sunny and windy. It is fascinating that the old telegraph lines are still out here. We think maybe we can line them up with the ones that Bridgland saw. The railroad embankment-built for that purpose-is still here too (minus the tracks). There is a new sand dune between where the RR lay and where the lake is. That, plus all these trees, wolf willow and rose bushes have made it very difficult to find the exact Bridgland location. In fact, we suspect it blew away in the wind.
> (http://bridgland.sunsite.ualberta.ca/station.php?id=90&action=moreinfo)

The BRPP field notes are full of insight and descriptions of a landscape in constant change. They also reflect the engaged and embodied character of the researchers' experience. Mark Klett sounds a similar note when he describes the process of repeat photography as "an act of participation" with a particular site, which engages the photographer (Klett, 1984:37). As brief glimpses of reality the

images do tell a tale of their own, and as Harper notes they also allow us to "make kinds of statements that cannot be made by words" thus enlarging our consciousness and understanding of the world (Harper, 1994:411).

Within the context of the website, the 1915 and repeat images are set up to tell a story of landscape change in Jasper. Part cultural construction, part experienced reality, the website provides a glimpse into the intricate dialectic that emerges between people and the natural landscapes we try to depict, understand and communicate about. Through the use of the repeat images and the website, the meaning of the park is re-negotiated - its status as pristine, unchanging wilderness supplanted with a definition of landscape that focuses on change. This re-negotiation likely does not come as a shock to researchers in the field of ecology, where the rhetoric of change has become a central focus. Nor would it come as a surprise to historians (environmental historians especially), or researchers in the natural sciences, who adopted the meta-narrative of change over a century ago (Worster, 1995). For these scientists and researchers, the idea of change is not new. It is in the realm of broad cultural perspectives of landscapes that the idea of change sparks debate.

4.4 Behind the Lens

> The meaning of the photograph does not reside in its physical structure, but rather in the dynamic and negotiating interaction between ourselves, our culture, and the image in question. (Berger, 1984: 52)

The BRPP researchers have constructed a compelling story of change for the landscape of Jasper National Park. However, as Berger indicates, the meanings or stories we create for photographs are part of a complex cultural negotiation between the physical image and the stuff of culture. Over the course of my own work (first as part of the BRPP team and then as critical examiner of it) I have interpreted the Bridgland Repeat Photography Project, the website and both sets of images in a number of different ways.

When I was initially hired to scan the collection, I approached the photographs primarily as data - containers of information. As part of the BRPP

team, I could appreciate their historical importance on a very general level, but was concerned first and foremost with capturing as much information as possible from the prints. As my own work progressed and I began to think about the photographs within the context of human activity patterns in Jasper, my interpretation shifted from seeing them simply as digital information, to understanding them as records of specific types of landscape changes in Jasper. More recently, through the lens of discourse analysis, I have interpreted M. P. Bridgland's maps and the BRPP website and images as cultural representations which can shed light on the viewpoints of their creators.

In addition to my own interpretations of the images, my conversations with BRPP researchers over the past several years seem to support the notion that the photographs have assumed different meanings for all of us over time. They are complicated cultural documents that compel serious consideration. By examining the BRPP website, I have drawn out some of the complexities of how language, images and experiences were used to construct this particular account of Jasper. It is my assertion that unpacking these sorts of authoritative accounts should be a fundamental part of our efforts to understand our relationship with places like Jasper National Park. Such steps become increasingly important should we seek to use these accounts in park management and restoration efforts.

Chapter Five –Imaging and Imagining

> Great people I find never read a long report but they will look over maps and pictures, and this will tell them everything if they examine the maps and the photographs carefully.
> (Samuel Anderson, 1874 cited in Birrell, 1996:113)

Maps and photographs can express more than we typically imagine. While the 1917 map created by M. P. Bridgland and the website displaying the 1998-99 repeat photographic images made by Eric Higgs and Jeanine Rhemtulla do not tell us everything, these representations certainly convey much about people's encounters with the landscape of Jasper. Additionally, these accounts are also made meaningful by the people who view them, in turn shaping a broader understanding of the park and the human place in it. Used as source material for maps, scenic images of the park, tools for restoration, or as evidence of landscape change, these images continue to shape the way we envision Jasper National Park.

William Cronon (1995), Ian MacLaren (1999), Jennifer Price (1999), and other cultural interpreters of nature have suggested that our ideas about wild places such as Jasper National Park have been deeply influenced over years, and even generations, by representations of the landscape that have made their way to us via artwork, photographs, scenic calendars, Hollywood movies and even trinkets purchased at the mall. Discussing Jasper National Park specifically, MacLaren explains that the image of the park in such representations as the 1953 Hollywood movie *River of No Return,* or the 1999 *National Geographic Traveler* article on top places to visit in the world, have both had important roles in making Jasper a desirable destination for tourists (MacLaren, 1999). If anything, MacLaren asserts, we have "probably underestimated the influence of movies and magazine articles in promoting our use of protected areas" (MacLaren, 1999:32). Accounts, especially authoritative accounts of the landscape, such as those produced by M. P. Bridgland and the BRPP, do play a role in the way that we understand our national parks, and, subsequently, how we see fit to use them.

However, Bridgland's 1917 account and Higgs and Rhemtulla's 1998-99 account are not simply cultural constructions, reinvented with every new generation to visit the park. There is a thread of continuity, derived from the influence of the landscape of Jasper that joins them. Combinations of cultural perspectives and embodied experience, these accounts reflect what historical ecologists see as the dialogical relationship between nature and culture, people and the environment. As Steen-Adams notes of her work in Zion National Park, understanding the history and cultural values of the people who have lived in or managed a place, combined with an understanding of the ecological history of that place can contribute greatly to our knowledge about how culture and ecology work together to create landscapes (Steen-Adams, 2002). By formulating a better understanding of how the landscape has taken shape, this type of knowledge can inform ecological restoration efforts in places where people have long been, and continue to be, a major force in landscape change.

I begin this chapter by reflecting on the insights gained through the analysis of M. P. Bridgland and the BRPP's accounts of JNP and seeking to more clearly understand how images (maps, photographs, and websites) have contributed to our cultural understanding of the park. Then, I discuss how these types of cultural accounts, in that they are informed by both cultural ideas and material realities, mirror what historical ecologists see as a relationship between culture and nature where landscapes are sites of exchange, and influence flows in both directions. I then return to Higgs' landscape evolution model. I argue that while this model is useful on a practical level for creating the link between theoretical approaches from historical ecology and insights from ecological restoration, it does not capture the synergistic essence of the relationship between nature and culture in creating landscapes.

5.1 Cultural Reflection

As I argue throughout this thesis, images of places like Jasper can tell us much about our cultural interactions with the natural world. Additionally, understanding these images and interactions is an important component in the process of conducting good ecological restoration - a component that Eric Higgs

(2003) has called *cultural reflection* (Higgs, 2003). I argued in chapter one that reflecting on changing cultural practices must also entail reflecting on underlying values and discourses that surround those cultural practices. In other words, understanding cultural practices also involves understand the cultural values and circumstances that motivate particular actions. Images such as the map, photographs, and website examined in chapters three and four help shape the way that we view, understand, and interact with Jasper. Ultimately, the way we use, protect, manage and restore places like Jasper is contingent partially on cultural notions of what the park represents and what is therefore considered acceptable practice. As such, understanding cultural representations of the park is a vital part of making viable and long-lasting management decisions and planning for the future.

Accordingly, in chapters three and four, I elaborated on two particular accounts of the landscape of Jasper National Park, asking how culturally constructed images such as maps, photographs, and websites (as part of a broader cultural discourse) shape the way we view, understand, and interact with Jasper. In the following sections, I reflect briefly on Bridgland's map before considering, in more detail, the BRPP images and website. I focus specifically on how the particular knowledge these authoritative produced about Jasper had a role in shaping how Jasper is understood and how things were done in it.

5.1.1 Reflecting on M. P. Bridgland's Map

M. P. Bridgland arrived in Jasper early in its history, to play out the Dominion's view of an ordered landscape and to pave the way for industry and tourism to advance into the wilderness of Jasper Forest Park. In Bridgland's map, wilderness went hand in hand with a series of industries including resource extraction, tourism and recreation. Nonetheless, an identity was constructed for Jasper as a primeval wilderness, based on popular perceptions of its rugged and inaccessible landscape. The naturalization of cultural features such as railways, mines and hotels in conjunction with seemingly vast wilderness areas on Bridgland's map led to the contradictory picture of the park where both wilderness and playground existed side by side. Images of a park where this

contradiction was manifest both reinforced and helped to create a broader understanding of the park. In other words, Bridgland's map had a role to play in the way the park was seen and understood and, subsequently, how it was managed.

The early character of the park evolved as a public pleasure ground wherein wilderness, industry, a growing population and growing tourist industry coexisted. While the people who lived and worked in Jasper strove to bring the civilization to the wilderness, people from the cities saw Jasper as one of the places where civilization had not yet transformed the wilderness. On a landscape that was valued because of its vast and seemingly inexhaustible resources, it was possible for the inception of Jasper Forest Park to be so closely tied to the railway, resource extraction and development without any immediate conflict perceived.

As an authoritative account of Jasper Forest Park, Bridgland's map naturalized and reinforced for countless tourists and many others, the notion that development, resource extraction and tourism were normal and acceptable practices in a park. In this way, Bridgland's account of Jasper gave meaning to the landscape for the people who viewed his map, and this, in turn, helped to create a broader understanding of the park and guided cultural activities within it.

5.1.2 Reflecting on the Bridgland Repeat Photography Project

Eight decades after Bridgland's map of Jasper was first published, the images he used as source material for his map continue to shape the way we envision Jasper National Park. Taken up by the BRPP researchers, Bridgland's photographs were reinvented as part of a new view of Jasper. As I argue in chapter four, the organizing narrative of the Bridgland Repeat Photography Project is *change*. That nature changes is clear, and real material change is evident in the experiences and observations of the BRPP researchers. However, their focus on change is also reflective of the interpretive framework of the ecological sciences as well as the cultural perspectives of the researchers.

An important outcome that the BRPP had for the park was to call into question the type of views that Worster calls "naïve, romantic assumptions about a static world of unspoiled nature" (Worster, 1995:66). By using the paired images to show the significant landscape change that had occurred since the establishment of the park, the BRPP demonstrated that what we see as the "natural" state of the park today is a relatively new landscape. Additionally, the 1915 images, cast as snapshots of the past, challenge notions of Jasper as an uninhabited wilderness. While wilderness is generally understood as a place where people are *not*, the 1915 images have been used to refer to the many Métis homesteads that existed in Jasper's Upper Athabasca River Valley when the park was established in 1907. Researchers point out that the expulsion of the Métis farmers created a park that was uninhabited as never before in the history of the place (Cronon, 1995, MacLaren, 1999).

Additionally, scientists have used the BRPP images to point to glacial change and the effects of climate fluctuations in the Canadian Rockies (Luckman and Kavanagh, 2000), as well as earth surface processes (Hinks and Cruden, 2003). Perhaps the most dramatic use of the images to depict change focuses on vegetation change in the park. Indeed, the original use of the collection of repeat images by Rhemtulla (1999) focused on landscape change. The results of her qualitative study indicate a shift in vegetation types in the montane ecoregion of JNP from grasslands, shrubs, young tree growth, and open forest towards an increase in homogenous coniferous stands (Rhemtulla, 1999). According to forest ecologists, much of the vegetation change that has occurred in JNP over the past eight decades can been attributed to climate change and lack of fire on the landscape (Rhemtulla *et al*, 2002). Indeed, forest ecologists worry that without the restoration of fire to the landscape, the vegetation will become much older, more densely forested, and dominated by conifers, while other species may be lost altogether (Rhemtulla, 1999).

Park managers have accepted the idea of change and applied it to restorative efforts in the park. They recognize that the park's long fire suppression policy has created a forest largely shaped by people and have begun to reintroduce fire on the landscape. Jasper park managers acknowledge that fire

is important for maintaining the habitat of many large mammals as well as controlling the populations of forest insects, and reducing the threat of wildfire to communities (Parks Canada Agency, 2003). The intention of park managers with prescribed burns is to restore fire as an important ecological process on the landscape (Parks Canada Agency, 2003). On the Jasper National Park website the use of prescribed burning is explained:

> many of the ecosystems we seek to protect within national parks are fire-adapted. In these ecosystems, fire controls vegetation dynamics and helps maintain biodiversity. Parks Canada uses planned prescribed burns and other fire management strategies to restore this essential ecological process. (Parks Canada Agency, 2003)

By demonstrating landscape change and challenging notions of a static, pristine wilderness, the BRPP has influenced restorative efforts in the park (Struzik, 2002). Indeed, several paired images presently serve as part of the interpretive display at the site of the 1998 prescribed burn near the airfield in Jasper.

As the BRPP website demonstrates, BRPP researchers have chosen to focus primarily on change. However, as I have argued in chapter four, *change* is not the only process visible in the repeat images (see figure 4.4). This preoccupation with change over time has serious implications for our practices and actions in the park and the future of the park. As Worster notes, the danger in this type of focus lies in "the excessive relativism that historical thinking can produce" (Worster, 1995:67). Taken to the extreme, the focus on change can be seen as a type of historically relativistic argument that can become problematic for the preservation and management of "wild" spaces such as our national parks. After all, if nature is nothing more than socially and culturally constructed ideas, why bother preserving it? Why restore it? What is the final goal of restoration?

Soulé and Lease, in the preface to their book, *Reinventing Nature? Responses to Postmodern Deconstruction*, point out what they see as some of the dangers in a radical historically relativist approach claiming that "certain contemporary forms of intellectual and social relativism can be just as destructive to nature as bulldozers and chainsaws" (Soulé and Lease, 1995: xvi). They

explain that this type of approach often can serve to question the reality of nature and wilderness, sometimes in order to further the exploitation of wild places with the justification that they aren't really natural anyway (Soulé and Lease 1995:xv). So, why preserve this so-called nature when we can create our own parks, interpretive centers and Disneylands?

Higgs (2003) also acknowledges the risks of taking change too seriously. He builds on Soulé and Lease's concerns about radical historically relativist approaches and comments that taking change seriously is to acknowledge, at the very least, a different meaning of wilderness, if not raise the possibility that there is no wild nature in parks and that parks themselves are constructions (Higgs, 2003). He worries about the possibility that the ecosystems we seek to restore will be converted into commodities (Higgs, 2003). Higgs points to what he sees as the "slow, inexorable drift in society . . . to convert everything of value into something that can be bought or sold" (Higgs, 2003:180). Where will we draw the line?

The BRPP's focus on change, while serving to dismantle naïve, romantic assumptions about the nature of places like Jasper National Park, can also be seen by some as potentially harmful and further complicate attempts to preserve or restore Jasper National Park. As we begin to look deeper into these sorts of issues, connections between changing ideas about the natural world and changing cultural practices begin to emerge. Links between how we think about Jasper and what we do in Jasper begin to take shape. But having glimpsed this connection where are we? This type of historical relativist approach does not seem to offer any firm guidance as we strive to protect, preserve, manage, or restore. However, perhaps such insights (drawn from the social sciences and humanities) in combination with knowledge of ecological reference conditions (input from the natural sciences) can suggest some conclusions. Documenting these connections is a slow process, but the only one that will help us move beyond the question-asking stage.

5.2 Bringing Together Culture and Ecology

Photographic surveys of Jasper, while conditioned by cultural beliefs and practices, were also dramatically affected by the distinctive mountain landscapes of the park. Similarly, in her dissertation on the human history of Georgian Bay, Claire Campbell notes that in these types of accounts, "clearly, landscape mattered – and has mattered more than we often think" (Campbell, 2001:3). Campbell asserts that her approach to incorporating the importance of the physical environment into human history is not old-fashioned environmental determinism, nor is it an acceptance that the landscape is purely a cultural construction; rather, Campbell sees landscapes as sites of exchange, where influence flows in both directions (Campbell, 2001).

Here, I turn back to Duncan's *sites of representation* (see chapter three for initial discussion). In an essay dedicated to addressing some of the problems of representing places, Duncan defines these sites of representation as the *site* to be represented (the geographical reality of a place) and the *site* (cultural, political, historical, theoretical situation) from which the observer sees the place (Duncan, 1993). Duncan's notion locates the observer in two metaphorical places at once, therefore necessarily separating him from one or the other. For Duncan, "the representation of places and regions necessarily partakes of this dualism" (Duncan, 1993:39). I would like to recast Duncan's "*site* from which the representation emanated" as a *sight* through which the observer views the landscape in which he/she is *embedded*. This reconfiguration modifies the dualism such that the observer is a more actively engaged with the reality of a particular place. In this way, an observer understands the environment by looking through his/her own cultural lens, but also by being engaged with that environment. It is my contention that this reconfigured metaphor, by merging the influence of both the *sight* through which the observer gazes and the *site* in which he/she is embedded, is more useful way by which to understand the representations created by M. P. Bridgland and the Bridgland Repeat Photograph Project.

The reconfigured metaphor I have adopted here to describe these two representations of JNP reflects what historical ecologists see as the interpenetration of culture and the environment.

5.3 Cultural Landscapes

In the introduction to her book *Historical Ecology: Cultural Knowledge and Changing Landscapes,* Carole Crumley defines landscapes as "the material manifestation of the relation between humans and the environment" (Crumley, 1994:6). In chapters three and four of this thesis I have argued that *representations* of the landscape are material manifestations of this same relationship. In this sense, landscapes are perhaps more like our representations of them than we think. I contend that the creation of representations of landscapes functions much as the creation of landscapes themselves – as the manifestation of this complicated relationship. The conflation of culture and ecology, and reality and construction is reflected in Bridgland's and Higgs and Rhemtulla's representations of Jasper, as it is in the landscape as well.

Here I return to Higgs' landscape evolution model (see figure 1.3). The model is valuable in that it links, in a pragmatic way, insights from ecological restoration with theoretical approaches advocated by historical ecologists. However, it is my contention that the complexity of the relationship between culture and ecology is not accurately represented. The model itself shows culture and ecology as two *separate* strands wrapped together through time – representing a process of landscape change that Higgs calls coevolution. The description Higgs gives states that "any given place changes over time as a combined function of cultural and ecological processes" (Higgs, 2003:260). Insights from chapters three and four, combined with theoretical approaches (about the relationship between people and their environments) from historical ecology, tell us that the relationship between culture and ecology is more complex than this.

Perhaps my reconfiguration of Duncan's site/site metaphor can be applied to Higgs' landscape evolution model as well as to the production of landscape representations. Rather than describing culture and ecology as two separate *sites*

(or strands, in this case) I suggest that culture be re-described as the particular *sight* through which we understand and interact with the ecological *site*, or the environment in which we are embedded. This reconfiguration modifies the separation between culture and ecology and suggests that people be situated directly within the ecological reality of a particular place. Again, in this reconfigured metaphor, people view their environments through their own cultural lenses, but also by being engaged with the environment of a particular place. The approach I have taken in this thesis is implicitly place-based, emphasizing the importance of people's experiences in particular environments. In this sense, my reconfiguration of the relationship between people and their environments goes further than Higgs' landscape evolution model to locate people and their own specific cultural views, within the particular place in question.

Chapter 6 – Conclusions

In this thesis I set out to examine some of the ways that people (specifically Dominion Lands Surveyor M. P. Bridgland, and Bridgland Repeat Photography Project researchers Higgs and Rhemtulla) have generated knowledge about Jasper National Park. I sought to shed light on the culturally constructed character of these scientific representations of the park. Like many anthropologists, I conclude that people (and the stuff of culture) cannot be ignored in the production of such accounts and that our understanding of reality must be tempered by an awareness of cultural construction.

In particular, I have made a case that M. P. Bridgland's map of Jasper was not simply a reflection of nature, but also an artifact based on cultural values and ideals. In Bridgland's map JNP is represented as both wilderness and playground, reinforcing the park's dual mandate as well as early 20th-century views of the park where civilization could be seen advancing into the wilderness. However, Bridgland's map was also shaped by his experiences in the landscape of Jasper. His survey method was influenced greatly by the landscape of Jasper, as were the photographic views he produced of the park. Bridgland's map, a conflation of culture and nature, opens our eyes to the complications of representing landscapes. In *Chapter Four – Looking Over Bridgland's Shoulder*, I examined the Bridgland Repeat Photography Project's website. Eighty-three and eighty-four years after Bridgland's survey, Higgs and Rhemtulla peered through their own camera at the landscape of Jasper. Though they made all the same views that Bridgland had, the view they presented was very different. Rather than a wilderness waiting to be mapped, Higgs and Rhemtulla saw forests overgrow with a single species of tree, highways and roads running through the valleys, and glaciers melting away. Why the dramatic change in views? Of course, much of the change perceived by Higgs and Rhemtulla has to do with real change occurring on the landscape. Additionally however, their focus on change emerges from current scientific thinking about the dynamic nature of ecosystems. I have argued that the focus on change, as depicted on the BRPP website, is not the only, or even the most important, process on the landscape, but, rather, one focus among others.

The insights gained from chapters three and four and interpreted within the theoretical framework of historical ecology further suggest that cultural processes are inseparable from ecological processes in the creation of landscapes. In this regard, Higgs' landscape evolution model, while serving as a functional link between theoretical approaches from historical ecology and the practice of ecological restoration, falls short in its attempts to portray the synergic interconnectedness of ecology and culture in the process of landscape evolution.

Having glimpsed the depth of the connection between mimesis and interpretation, cultural construction and experienced reality, culture and ecology, where are we? Worster suggests that the awareness of historical (and I include cultural) relativism "frees us from dogma but offers no firm guidance to belief. It cannot really invalidate the intellectual tendencies of our time, or any other time, nor can it validate new ones" (Worster, 1995:78). I agree that while recognizing the culturally and historically constructed nature of scientific accounts broadens our views of the world and makes us think more carefully about our own actions and beliefs, this recognition offers no data that can be pinned down and translated into a practical course of action or a list of recommendations. As such, this study offers no prescriptive strategy for Jasper park managers. However, I do suggest that it is important to consider various theoretical approaches as well as insights from different disciplines when confronting complex issues such as managing national parks. Perhaps then, this study can serve as a starting point for future research aimed at untangling the complexities of cultural landscapes. Indeed, it is only by documenting the complexities of particular cases can we move beyond the question-asking stage.

6.1 Building a Future for Jasper National Park

With renewed support and a significant financial commitment from the federal government announced in the spring of this year, the future for Canadian national parks looks bright. It is my hope that this renewed support will allow managers in Jasper (and the rest of the country) to feel less overwhelmed by financial restraints and more open to exploring new approaches to management. With environmental research expanding into most departments at colleges and

universities, the timing couldn't be better. I see this as an opportunity for park managers and officials to broaden their approach to managing our national parks, and I believe that the social sciences and humanities have an important role to play.

Much contemporary research in environmental anthropological has demonstrated that people (and the stuff of culture) cannot be separated from environmental problems, or the management of landscapes (Crumley, 1994; Jaffee, 1997; Milton, 1996). As Conrad Kottak notes, environmental anthropology is well-suited "to understand and devise culturally informed solutions to such problems/issues as environmental degradation" (Kottak, 1999:23). This environmental anthropology often blends theoretical and empirical research with applied, policy-driven work (Biersack, 1999; Kottak, 1999; Milton, 1996). Ray Rist also advocates this type of applied qualitative contribution from the social sciences. He notes that while there is no "broad-based and sustained tradition within contemporary social science of focusing qualitative work on policy issues", the policy community is ready for and would be receptive to anything those in the qualitative researchers could offer, should they choose to make the effort to do so (Rist, 1994:556). The social sciences and humanities have much to offer.

In this thesis I have argued that insights drawn from examining and interpreting scientific accounts of Jasper National Park can aid park managers in Jasper as they work to create and implement policy, and plan a future for the park. Already, Higgs and Rhemtulla's account of landscape change in Jasper National Park has influenced restorative efforts in the park (Struzik, 2002). It has provided a visual account of how the vegetation in the ARV has changed, reinforcing, for Jasper park managers and officials, the idea that fire is an important process on the landscape. Several paired image sets also serve as interpretive material for the public at the site of a recent prescribed burn in the park.

Also understanding the cultural character of Higgs and Rhemtulla's account can enable park managers to act in the present (by choosing to incorporate prescribed fire into their management plans) with an awareness of

the role that their current decisions play in the large continuum of interactions between people and the environment. Integrating history has assisted park managers to theorize how cultural practices (for instance, fire suppression policies) have helped create the homogenous stand of conifers that occupies the Athabasca River Valley today. Additionally however, cultural reflection should encourage park managers to consider how their own actions shape the landscape over time. As Steen-Adams notes, land management is driven by "the landscape ideals, scientific concepts, and management assumptions and goals of our own culture and time" (Steen-Adams, 2002:259). These ideals, concepts and assumptions, translated into action, mould the landscape of the future. Eric Higgs suggests that we need to acknowledge our own participation in creating landscapes and embrace it:

> By contemplating the legacy of change in Jasper National Park, we can all image a different kind of place in the future. What if we were to take a different lesson from historical change? What if we understood the many changes as contingent, as mere points on a longer timeline? We might then wonder whether it is possible to make equally large changes in the future, yet do so with greater conscious intention than ever before. (Higgs, 2003:269)

Whether we focus on change or continuity, our actions are an important process on the landscape. As I have argued throughout this thesis, ecological restoration is a form landscape management approach that can integrate both ecological and cultural knowledge. Here I turn back to Higgs' expanded concept of ecological restoration (recall figure 1.2). This model, in that it locates effective scientific restoration within the broader context of economic and historical, cultural, social, political, moral and aesthetic concerns, is where ecological restoration is the most promising. What I see as one of the practical aspects of this model of expanded restoration for park managers is its inherent interdisciplinarity. I envision for Jasper National Park, a future where park managers, officials and staff work with ecologists, biologists, botanists, historians, anthropologists, and sociologists to come up with ecologically and culturally informed solutions to environmental and managerial problems.

Additionally, ecological restoration has the potential to promote long-term partnerships. Indeed, Kidder and Balée note in the concluding chapter of *Advances in Historical Ecology*, that the sort of interdisciplinary approach espoused in historical ecology (and I argue, ecological restoration) is part of a greater and far more consequential and wide-reaching transformation in science as a whole (Kidder and Balée, 1998):

> Practices are maintained or modified, decisions are made, and ideas are given shape; a landscape retains the physical evidence of these mental activities. Past and present human use of the earth must be understood in order to frame effective environmental policies for the future; this necessitates deft integration of both environmental and cultural information at a variety of temporal and spatial scales. (Crumley, 1994:9)

6.2 On Future Research

When I started my Master's program in the fall of 2000, I was looking for a pragmatic approach to environmental problems that could incorporate both ecological and cultural knowledge in a meaningful way. My work on this project has convinced me that the practice of ecological restoration is promising in this regard.

However, untangling the complicated web of cultural values (scientific, economic, traditional, environmental), perceptions of landscape, issues of power, and environmental problems that are caught up in ecological restoration projects is a daunting task. To add to the complexity, ecological restoration is increasingly, being practiced cross culturally. For instance, much work is presently being done by North American restorationists in countries in Central and South America. As Higgs notes, many North American restorationists (at present more than 90% of the members of the Society for Ecological Restoration live in either Canada or the U. S.) perceive cultural differences as problems to navigate past in cross-cultural restoration projects (Higgs, 2003). While these scientists may have much to offer in the way of techniques, experience and scientific knowledge, outside their own cultural circumstances, these begin to break down making restoration projects less successful (Higgs, 2003). Higgs also

notes the considerable risk faced by North American restorationists should cultural differences not be acknowledged and addressed. This risk, of course, is that North American restorationists will "enact . . . perhaps without broad awareness, yet another chapter in a continuing story of ecological imperialism" (Higgs, 2003).

As ecological restoration projects expand into South American and other regions of the world, anthropologists are provided with a great opportunity not only to examine the complex cultural conjunctures that arise in these projects, but also to aid in environmental issues by acting as cultural brokers between North American scientists and local peoples. Though time constraints prevented me from pursuing ethnographic research for my own project, possibilities for future research in this area are numerous and intriguing. An ethnographic study of a restoration project (either at here at home or abroad) would be an ideal approach to shed light on the complex web of issues associated with cultural values, perceptions of landscape and issues of power.

6.3 Concluding Remarks

> All humans are connected to nature [and] all people, have made nature meaningful. What changes is not the fact of connection, or the amount of meaning, but the content of each. (Price, 1999:17)

Understanding the history and meaning of the landscape of Jasper requires understanding our connections to it. In this thesis I have explored the ways in which people have generated knowledge about Jasper National Park (through language, maps, and images) and how this knowledge in turn, has shaped our understanding of the park and informed how we choose to act in it.

Indeed, as Carole Crumley notes,

> changing human attitudes toward the environment may also be identified, their effects studied; it is, after all, decisions – both conscious and unconscious – and their effects that impact human lives and livelihood and change the face of the earth. (Crumley, 1994:6)

Ultimately, I believe it is impossible to experience the landscape without also bringing to it contemporary cultural preconceptions. To be sure, my own experiences in Jasper seem to support that assertion. As such, it is important that people understand what their cultural preconceptions are, and where they came from. Perhaps most importantly, they must understand that they have choices about how they view the land and how they use it, and that these choices will impact the future of places such as Jasper National Park.

For Jasper National Park specifically, I believe the choices we have, the possibilities and options for the future must be examined carefully and by incorporating various sources of knowledge both ecological and cultural. This task will prove difficult and complex. However, should any doubts arise, I can simply transport myself back to that place out there on the edge of the Palisades Cliff, (see figure 6.1) where this thesis began, and look out over thousands of years of trees, trails, limestone and stories, and know that this is a place of great history, a place where the complexities are worth understanding.

Figure 6.1
View from the Palisade lookout, August 9, 2002. Photo by Jenaya Webb.

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